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United States  
Department of  
Agriculture

Economic  
Research  
Service

RS-92-1  
May 1992

# Former USSR

## Agriculture and Trade Report

### Situation and Outlook Series

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## Report Coordinator

Kathryn Zeimetz

## Contributors

Edward C. Cook

Kenneth Gray

William M. Liefert

Yuri Markish

Sharon S. Sheffield

Kathryn Zeimetz

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Approved by the World Agricultural Outlook Board.  
Summary released May 14, 1992. *Former USSR Agriculture and Trade* is one of five annual reports in the World Agriculture Regional series. Other titles are *China*, *Western Europe*, *Pacific Rim*, and *Developing Economies*.

Summaries of the reports, including tables, can be accessed electronically through the USDA EDI system. For details, call (202) 720-5505. Subscriptions are available from ERS-NASS, P.O. Box 1608, Rockville, MD 20849-1608. Or call, toll free, 1-800-999-6779 (weekdays, 8:30-5:00 ET).



## Summary

In 1992, policymakers in the newly independent States of the former USSR will continue to negotiate the transition to a market system. Russia, which accounted for about half the population and even more of the area of the former USSR, leads in progressive market reforms. As the leader, it also shows the political and economic dislocations involved in reallocating resources more efficiently.

The inevitability of moving to a market system is accepted in most of the region. A short-run effect of the transition will be reduced consumption and production of many agricultural commodities. One reason for the declines is that the tremendous resource shifts necessary to restructure the economy will temporarily idle some resources, including labor and land. In agriculture, the shift includes the switch from collective and state ownership to private ownership. The restructuring will be especially difficult because large producer and consumer subsidies had swelled demand for food and distorted the resource allocation among farmers, processors, and distributors.

Another reason that overall output is falling is that the ruble fails badly as a currency. Declining central control and administrative transfers increased the need for well-functioning money to simplify market exchange. The ruble's decreasing value and acceptability in domestic trade, fed by excess money emission, caused a decline in trade in all goods, including farm commodities and inputs. Difficulty in selling output and obtaining inputs has cut production. Although foreign trade is being decentralized, ruble inconvertibility hampers foreign trade and encourages inefficient barter exchange.

Major progress was made in 1991 and through March 1992 in liberalizing prices for agricultural commodities and inputs and reducing subsidies from state budgets, particularly in Russia. The surge in prices helped balance food markets and the macro economy. In April, however, Russian leaders made concessions that increased inflationary pressure. High inflation threatens progress on price liberalization, ruble convertibility, privatization, and other key reform measures.

Gross agricultural production is expected to decline further in 1992, although more normal weather likely will raise crop output. Animal products output will continue to fall as producers retrench in response to lower feed supplies in the first half of the year and to decreased consumer demand. Most of the former republics are returning to policies such as heavily subsidized credit and reinstatement of producer price subsidies for livestock products.

Renewed dependence on subsidies and administrative methods, however, will likely postpone transition to a market system.

The former republics remained committed to relatively high food imports in mid-1992. Appeals for concessionary terms for food imports will likely continue even as reforms improve balance in the domestic food markets. Agricultural aid and credits temporarily release diminished hard currency earnings, which can be used to finance nonagricultural imports and service debt largely run up by nonagricultural imports during 1988-90. The availability of exporter credit programs in 1992 will strongly affect the level, composition, and sources of imports.

The variety of food credits and other agricultural aid programs offered to the former USSR increased in late 1990 and through 1991. Offers of outright donations were relatively small compared to roughly \$15 billion in credit and trade assistance offers. However, almost half the offers were unused as of April 1992, including much of the EC's \$2 billion package. The offers included about \$10 billion in credit guarantees, almost \$3 billion in direct credits, and more than \$2 billion in barter deals.

Several factors ultimately could lower agricultural imports by the former USSR. The former republics cannot allow their economies to freefall between administrative and market systems. Reversion to an administrative system likely would decrease foreign credit and cause their economies to grow less and less efficient. Export revenues would continue to fall, and financing debt repayment and agricultural imports would become more difficult.

Substantial movement toward a market economy requires freeing prices, demonopolization, and hard budget constraints. Such changes would decrease demand for animal products, cut waste at all levels, and raise agricultural efficiency and production. Agricultural labor productivity is one-tenth that of the United States and livestock feeding efficiency barely half.

True economic reform means that farmers in the former republics respond to market prices and produce according to their comparative advantages. Given the former USSR's agroclimatic conditions (and assuming trade undistorted by the protectionist policies pervasive in the West), the former USSR likely would increase protein feed imports and probably specialize in wheat and dairy production.



Between January 1, 1991, and April 1, 1992, the United States has allocated \$3.75 billion in GSM-102 credit guarantees for the former USSR and announced the potential for another \$1.1 billion. The credit guarantees covered more than 80 percent of FY 1991's \$1.8 billion of U.S. agricultural exports to the USSR. If the United States completes shipping all the remaining guarantees by

September 30, 1992, U.S. FY 1992 agricultural exports to the former USSR (excluding freight) will be about \$3 billion. In addition, separate arrangements with the Baltic States and additional humanitarian assistance will further raise U.S. farm exports to the former USSR. The record for fiscal year exports to the USSR is \$3.3 billion in 1988/89.



## Economic Turmoil Accompanies Dramatic Political Change

The failed coup attempt against President Gorbachev in August 1991 led first to the abolition of the Communist Party, and then to the breakup of the Union itself along republic lines. After officially dissolving the Union in late December, the republics created a very loose association with the Commonwealth of Independent States (CIS; the four nonparticipating republics are the three Baltic States and Georgia).

In 1991 real GNP, industrial production, and agricultural output in the former Union all dropped between 7 and 17 percent. Even more serious, though, was the breakdown in the country's distribution system. Contributing factors were the termination of the All-Union central supply system that accompanied the Union's political demise, and chronic weaknesses in the country's physical infrastructure. A third reason was the collapse in the ruble's power as effective money as a result of destabilizing price, wage, fiscal, and monetary policies pursued both before and after the coup. With money not functioning as an effective means of exchange, enterprises, regions, and republics turned increasingly to crude barter. Barter's inefficiencies, though, retarded the movement of goods, which by depriving enterprises and farms of necessary inputs, contributed to the fall in output.

With output continuing to drop and the former planned, command system largely discredited, almost all the newly independent States began 1992 committed to some form of decentralizing economic reform. Russia has taken the lead, with an ambitious program intended to create a system much closer to market capitalism than socialism. Prices have been liberalized, with privatization, ruble convertibility, and integration into the world economy slated to follow. In April the West gave its strong support for the program with an aid package totaling \$24 billion.

### *Macroeconomic Imbalance Most Serious Problem in 1991*

From 1985 through 1991 per capita money income in the USSR rose by about 150 percent.<sup>1</sup> The rise in money income was closely related to two other common indicators of inflationary pressure, state budget deficits and money supply expansion. The combined deficit of the All-Union and individual republic budgets in 1991 was 200-240 billion rubles, after All-Union deficits in the preceding 4 years ranging from 50 to 80 billion rubles (table 1).

Major causes of the deficits were growing food subsidies and a large reduction in enterprise profit taxes. The latter helped provide the funds enterprises used to increase workers' wages. In 1991 the money supply more than doubled, mainly as a result of the banking system

providing large and easy credit to enterprises, which they also used to raise wages.<sup>2</sup>

While money incomes increased, prices for food and most other consumer goods were not allowed to rise accordingly to clear consumer markets (low retail food prices thereby requiring substantial budget subsidies to the food wholesale trade system). The abolition of 50 and 100 ruble notes (with partial compensation) and tripling of consumer prices in early 1991 were attempts to reduce some of the excess consumer purchasing power. Nevertheless, by fall 1991 consumers still held about 280 billion rubles that were unspendable at existing consumer prices.<sup>3</sup> Because of the repressed inflation and surplus purchasing power, the ruble broke down in its main function as an accepted means of exchange.<sup>4</sup>

One consequence of the macroeconomic imbalance and its harmful effect on the use of money is that excess demand existed for almost all consumer goods. This resulted in all the signs of consumer shortages--longer lines for goods, hoarding, barter, and the growth of black markets. Another effect is that state procurement authorities (before the coup at the All-Union level, after the coup at the republic level) had increasing difficulty purchasing output from enterprises and farms with increasingly unattractive rubles. In 1991 the republics collectively purchased from farms only 53 percent of the original All-Union procurement target for grain (41 of 77 million metric tons).

The central supply system, which the increasing republic assertiveness in political and economic affairs before the August coup had weakened, collapsed at the All-Union

Table 1--State budget deficit and share of GDP, former USSR

Year	Deficit	Deficit as share of GDP
	Billion rubles	Percent
1985	13.9	1.8
1986	45.5	5.7
1987	52.5	6.4
1988	80.6	9.2
1989	80.7	8.7
1990	58.1	6.2
1991	1/ 200-240	12-14

1/ Value for 1991 covers 11 members of Commonwealth of Independent States (15 republics of former USSR minus Baltic States and Georgia); estimate of former Soviet State Committee for Statistics.  
Sources: *Narodnoe khozyaistvo*, various years; *Ekonomika i zhizn'*, No. 6 (1992).



level after the abortive putsch. However, a well-functioning distribution system based on markets could develop only if the ruble worked as effective money. The unattractiveness of the ruble as a means of exchange contributed to a creeping paralysis in the economy's distribution system. Since farms, enterprises, regions, and republics all became averse to trading goods for rubles, barter, with all its inefficiencies, became the dominant means of exchange between regions and republics.

Another consequence is that real output fell across the economy. Official statistics show that gross domestic product and net material product in the CIS republics dropped in aggregate by 17 and 15 percent. The reported declines in aggregate industrial and agricultural output were 8 and 7 percent (table 2). One reason for the fall in output is that the reduced flow of goods through the economy because of distribution problems resulted in many factories and farms not receiving necessary inputs. The money surplus also reduced incentives to work, produce, and sell. Attempts by the government to stimulate increased production and sale to the State through higher prices often backfired by motivating enterprises (including farms) to produce less.<sup>5</sup> Because the value of additional ruble income was judged so low, enterprises' objective often was not to increase revenue or profit, but produce the minimum necessary to obtain a given level of money revenue. Higher prices allowed enterprises to obtain this target level of revenue with less output.

Investment fell along with output. In 1990 total capital investment in the USSR equalled 230 billion rubles, while in 1991 the figure for the 11 CIS republics was 166 billion rubles.<sup>6</sup> Yet, as discussed in last year's report, the drop in both output and investment might lead one to overstate the fall in present, and expected future, material welfare.

With the collapse of the central planning system at the All-Union level, a disproportionate share of the fall in output and investment would be in products that satisfied the desires of planners more than consumers. Also, some of the decreased output reflected reduced waste and inefficiency, which the rigors of the more decentralized and market-oriented economies of the republics already demanded. The expected continued decline in output and investment in 1992 should also be interpreted in this light. Welfare in 1991 nonetheless fell, mainly because of the worsening distribution problems.

The macroeconomic imbalance and weakness of the ruble also strengthened, for economic reasons, the strong post-coup sentiment among the republics for independence and dissolving the Union. Because of the ruble's unattractiveness, enterprises, regions, and republics all felt that the sale of their output for rubles alone was a subsidy to others at their expense. Such thinking buttressed autarkic attitudes. Also, faith in the central government's ability to maintain fiscal and monetary discipline was destroyed.

#### *Russian Republic Begins 1992 with Radical Economic Reform*

Virtually every republic began 1992 with at least an official commitment to decentralizing, if not radical market-oriented, economic reform. The Russian Republic, though, has led the way with a radical reform program. Its main architect is Yegor Gaydar, appointed Russian Deputy Prime Minister in early November, who leads the government's group of reform-minded economists.<sup>7</sup>

The "Gaydar program" has three general objectives. The immediate one, and a necessary condition for achieving the other two, is to restore macroeconomic balance and thereby reestablish the ruble as effective money. The second is to create the institutional base for a market capitalist system, the key being privatization. The third is to integrate the Russian economy into the world economy.

Two policy moves are necessary to restore macroeconomic balance, and correspondingly the ruble's power as workable money. The first is that the government must prevent the further growth of inflationary pressure. This requires a much reduced budget deficit, as well as a large reduction in the growth of the money supply (requiring mainly that the state banking system reduce credit to enterprises). Large budget deficits and easy credit would eventually increase the population's disposable money income without a corresponding rise in goods for sale. The Russian program has promised tough budget, money, and credit policies.

Table 2--Economic performance indicators, former USSR

Category	1989	1990	1991 1/
	Percent		
Gross domestic product	3.0	-2.0	-17.0
Net material product (national income produced)	2.4	-4.0	-15.0
Industry	1.7	-1.2	-7.8
Consumer goods	4.9	4.4	-4.5
Producer goods	0.6	-3.2	NA
Agriculture 2/	1.3	-2.3	-7.0
Transport 3/	-1.9	-5.9	NA

NA = Not available.

1/ Values for 1991 cover CIS republics. 2/ Gross production. 3/ Volume of freight.

Sources: *Narodnoe khozyaistvo v 1989 and 1990*; *Ekonomika i zhizn'*, No. 6 (1992).



In addition to stopping the growth, or flow, of excess consumer purchasing power, the State must also mop up the existing stock of surplus rubles. The most direct way would be to free prices and thereby let them rise to their market-clearing level. On January 2 Russia began major price liberalization. Prices were wholly freed for many producer and consumer goods, including clothing, consumer durables, and most foods (meat for example). Price controls were retained for fuel, transport, and some foods, such as bread and milk, but with prices raised significantly. Controlled prices for food generally tripled, while those for fuel quickly rose 3 to 5 times.<sup>8</sup> Wage liberalization accompanied that of prices. In January alone the price level rose about 250 percent, while the inflation rate in February, March, and April was 30-40 percent each month.<sup>9</sup> Such rates correspond to an overall inflation over the 4 months of 700-800 percent. By April, the price liberalization had pretty much succeeded in eliminating the ruble overhang in Russia.

The second main policy of the Gaydar program is privatization, which by its nature must proceed more slowly. As announced in late December, in the first half of 1992 privatization would begin for enterprises in wholesale and retail trade, in primary processing of agricultural goods, and in services to the agricultural sector. In the second half of the year privatization would start for road transport and vehicle repair services, construction, and the food, light, and building materials industries.<sup>10</sup> Also, nonprofitable collective and state farms would be broken up and the land made available to private farmers. Private farming in general would be encouraged.

In foreign economic relations, the Gaydar program intends to reduce trade barriers (that exist mainly on exports rather than imports), increase access to hard currency for domestic enterprises, and encourage Western investment. The key policy to integrating the domestic economy into the world economy, though, is making the ruble convertible. As discussed in the section on possible forms of economic union among the former Council for Mutual Economic Assistance (CMEA) countries, the main domestic economic requirements for ruble convertibility are market-clearing prices and a stable aggregate price level. Another condition requiring foreign aid is a ruble stabilization fund of hard currencies. Such a fund (which would be used to buy the ruble with hard currency when its exchange rate falls) would be necessary to instill confidence in the rate's stability.

Benefits from integration into the world economy would be increased Western investment and the gains from expanded trade based on comparative advantage. A more

immediate benefit, though, stems from a feature of the republics' economies inherited from the former Union. Because of Soviet planners' bias for large-scale enterprises, in many industries only one or two producers provide the bulk of output. Price liberalization will allow large enterprises to exploit their monopoly or oligopoly power by charging high prices. Thus, privatization should be accompanied by a program of breaking up big enterprises whose size is not justified by economies of scale, as well as regulating those "natural monopolies" legitimized by economies of size, requirements recognized by the Gaydar program. Like privatization, though, such sundering takes time. As a result, opening the domestic economy up quickly to the world market would allow foreign competition to reduce the market power of domestic producers.

In late February the Russian Government announced its economic program through 1992, which specified further and accelerated the reforms begun two months earlier.<sup>11</sup> With the exception of rent, communal services, and public transport, all consumer prices were soon to be freed. Price controls on fuel (including oil), as well as those remaining for producer goods, would also be lifted. Major cuts in subsidies to both enterprises and consumers (mainly for food) and new taxes are intended to lower the budget deficit to 2 percent of quarterly GNP in the fourth quarter of 1992, with a balanced budget in 1993. Stricter monetary and credit policy will also be pursued. Although the general policy of liberalizing wages would be continued, a progressive tax would be established on high wage increases by state enterprises. Compulsory sales by farms and enterprises to the State would be eliminated by the end of 1992. The ruble will be made convertible for most purposes, with a single fixed exchange rate. Domestic importers would be able to purchase hard currency freely at that rate. Export quotas will be dropped for almost all goods quotas.

If implemented in its entirety, the February program will radically move the Russian economy toward an open market system. In preparing the program, the Russian Government worked closely with the International Monetary Fund, which Western governments have given the task of coordinating macroeconomic advice and financial assistance to the CIS republics. Russia's bold commitment to accelerated reform motivated the West in April to offer \$24 billion in aid. Most would go to balance-of-payments support (help cover the difference between export earnings and the combination of import expenditures and debt service); \$6 billion would be used as a stabilization fund to support convertibility of the ruble.



The Gaydar program has provoked strong domestic criticism, not only from conservatives as expected, but also from many reform-leaning politicians and economists. Examples of the latter are Anatoli Sobchak, mayor of St. Petersburg, and Nikolay Petrakov, Gorbachev's top economic advisor in 1989-90. A major criticism is that price liberalization before demonopolization of industry puts the cart before the horse, as it allows producers with market power to raise prices at buyers' expense.<sup>12</sup> Pressure also exists to increase income compensation to the population and credit to enterprises, which by April had debts of 800-900 billion rubles. Such financial largesse in preceding years, though, helped create the macroeconomic imbalance and inflationary pressure the government is currently battling.

The government compromised by increasing income compensation, financial support to agricultural producers, and credit to enterprises. The Russian Central Bank promised to expand enterprise lending by 200 billion rubles, and might well increase loans by a further 70-80 billion rubles. The Bank also gave the Ministry of Finance a credit line of 67 billion rubles, to finance (monetize) part of the growing budget deficit. Since the money expansion multiplier for Russia is considered to be between 2 and 2.5, the total credit growth should equal 700-800 billion rubles.<sup>13</sup>

The reformist ministers retained power and the determination to continue reform. Yet, the April budgetary and monetary concessions weakened the reform effort. Essential short-run requirements of the reform are restoring macroeconomic balance, and along with it, confidence in the ruble as effective money. The latter requires that the large price rise following price liberalization be largely a one-shot affair. The risk is that the pressure for increased enterprise credit and income compensation will lead to a ruble- and reform-destroying inflationary spiral.

Through March the government's commitment to stricter budget and monetary policies prevented the large emission of credits and funds necessary for substantial compensation. In the first 4 months of 1992 money incomes (including retirees' pensions) about tripled. Since the percentage growth in prices from January through April (700-800 percent) had exceeded that in money incomes, the threat of hyperinflation had so far been avoided. The April concessions, though, increased inflationary pressure. Even if hyperinflation is averted, continued high inflation would threaten price liberalization, ruble convertibility, and other linchpins of the reform program.

## *Reform Status of Other Republics*

Although almost all the republics began 1992 committed to some form of decentralizing reform, the republic governments varied on the degree of desired change. Whether they wished to or not, all felt they had to follow Russia's lead in liberalizing, or at least raising, consumer prices in early January. To not do so would risk being deluged by Russian consumers wanting to buy at the republics' lower prices.

The Ukraine, in particular, resents that, because of such interdependencies and Russia's size, the latter's reform program is circumscribing its own. Exacerbating the resentment is the fact that the Ukrainian government takes a more conservative view on the need for and merits of radical reform.

Along with Russia, the Baltic States of Lithuania, Latvia, and Estonia are the republics of the former Union most committed to radical reform, with privatization programs being developed in all three. The main economic concern in the Central Asian republics is their relationship with Russia, because of their dependence on it for fuel, other natural resources, and heavy industrial goods. The close integration with Russia should strongly influence these republics' reform agendas. While Georgia and Moldova have been preoccupied with problems of internal political stability, Armenia and Azerbaijan have focused on their ethnic conflict, centered on control of Nagorno-Karabakh.

Although the republics remain heavily dependent on each other for natural resources and goods, they have not been coordinating their economic reforms and policies. Republics would further separate themselves economically if they establish their own currencies. As of April 1992, the Ukraine, Byelarus, Moldova, and the Baltic States appeared committed to separate national currencies (with the Ukraine already having a quasi one with its coupon system). A later section in the report examines possible forms of economic union the republics could create.

## *The Reform Road Ahead*

Effective reform in the republics will involve massive restructuring of the economy. This will require major changes in the mix of goods produced, and in where and how inputs, especially labor and capital, are employed. The restructuring will occur for two main reasons. The first is that under the planned command system the economy was geared to satisfying planners', as opposed to consumers', desires. Planners, and their political masters,



had a strong bias toward heavy industry, with high output of products such as energy, metallurgical goods (especially steel), and chemicals becoming an end in itself. The concern for increasing output regardless of how it was used was one reason for huge waste. Military industrial output and capacity were also very large, the bulk of which is no longer needed.

A second reason reform will entail massive restructuring is that the system was very technically inefficient in production--that is, much more input was needed to produce a given level of output than in the developed West. Although many factors were responsible for this, including scientific and technical backwardness vis-a-vis the West in many areas, a main cause was that the performance indicator system encouraged wastefulness. The main indicator by which enterprise performance was judged was gross output, measured usually by weight. For instance, if an enterprise used steel as an input, it had incentive to maximize, not minimize, the amount of steel used per unit of output.

Restructuring toward more technically efficient, and thereby more labor-saving, production that also satisfies consumer wants, involves good news for the long run, but bad news for the short run. In the long run, these changes can increase growth and make consumers much richer. However, the ensuing reallocation of labor will almost certainly result in high unemployment in the short term. New jobs will not immediately replace those lost, as the reform experience of Central Europe shows. In 1991, unemployment in Hungary, Czechoslovakia, and Bulgaria rose from less than 2 percent to 8, 6, and 10 percent, respectively. In Poland it jumped from 6 to 11 percent. Feodor Prokopov, the Russian Deputy Minister of Labor, surmises that unemployment in Russia could rise to 5-6 million by the end of 1992.<sup>14</sup> In coming years it could grow even higher.

The macroeconomic imbalance, which has dominated the reform effort since about 1987, occurred largely because the government's objective of increasing efficiency conflicted with the desire to protect enterprises and jobs. The hope under Gorbachev was to raise efficiency by increasing the decision-making power and accountability of enterprises, and by strengthening the role of market exchange. The government justifiably worried, though, that decentralization and market enhancement would threaten less efficient enterprises, raising the fear of large-scale bankruptcy and unemployment. To protect enterprises and jobs, the government increased credit to enterprises and reduced the profit tax. Such largesse, though, undercut the logic of the reform's efficiency-raising measures. It also created the additional problem of monetary imbalance that has plagued the economy since. Enterprises used the funds obtained to increase workers' wages, despite no justifying growth in productivity. The end result was inflationary pressure that all but destroyed the monetary system.

Protecting enterprises and jobs has helped delay what must be the heart of real reform--restructuring. Consequently, the republics must now face the rigors of restructuring, with its ensuing unemployment, while simultaneously correcting the macroeconomic imbalance, which requires the hardships of price liberalization and austere fiscal and monetary policies.

The government's decision in April to expand credit to enterprises was another instance of protecting jobs and the economy's existing structure at the cost of exacerbating inflation. Yet, no economic program, regardless of its technical merits, is worthy if it provokes political and social resistance that threatens the entire reform movement. The pace and fate of reform depend ultimately on how much short-term hardship the population is willing to tolerate in expectation of a better future.  
(William M. Liefert)

## Few Options for Agricultural Policy

Policymakers in the countries of the former USSR are attempting to negotiate the transition to a market system in the agriculture and food sector with minimum social costs. The inevitability of moving to a market system is accepted in most countries of the region. In the short-run, however, both consumption and production of many agricultural commodities will fall, largely because of the reduction of the tremendous producer and consumer subsidies that existed under the traditional command economy. These subsidies bolstered domestic food demand and channeled production resources to farms. Adoption of a market system and the need to rein in budgetary expenditures mean that these subsidies will be greatly reduced or eliminated. Production and allocation of inputs for agriculture have been disrupted by breakdowns in traditional supply relationships stemming from the economic contraction and increased barriers to trade across republic boundaries. Some of the production problems faced by agriculture in this region can be dealt with as part of the economic reform. Others, however, have developed as integral aspects of the reform itself.

Major progress has been made in liberalizing prices for agricultural commodities and agricultural inputs and reducing subsidies from the state budget, particularly in Russia. The most significant impacts of the new price policy has been greatly reduced demand for food commodities and declining terms of trade for agriculture. Both of these developments, along with physical shortages of some key inputs such as feed, have contributed to declining agricultural production and consumption thus far in 1992. This has led most governments in the region, including Russia, to reinstate administrative support for agricultural producers. This has come in the form of heavily subsidized credit and the reinstatement of producer price subsidies for livestock products. With the traditional command channels well on the way to being jettisoned, it is uncertain what administrative powers governments in this region can actually bring to bear on the problem. Too strong a reliance on command methods will not only delay the transition to a market system in the agro-food sector, it will actually move these economies further away from this goal.

In the meantime, progress is just beginning on restructuring and privatizing farms and the economic enterprises downstream of agriculture. The most rapid progress is expected in retail trade and trucking. Some early progress can also be made in privatizing small food processing operations. The crux of land privatization will be the restructuring of existing state and collective farms. It is important that such restructuring be carried out according to market principles rather than administrative

fiat. Privatization of input manufacturers, which tend to be large-scale if not monopolistic enterprises, will be more complicated. The traditional distribution networks for farm inputs, however, have already begun the process of privatization.

### *Progress on Price Policy*

Following years of delay by the government of the former USSR, the Government of Russia adopted a policy of liberalized prices for most agricultural outputs and inputs at the beginning of this year. Almost immediately, farmgate prices for agricultural commodities jumped by 5-7 times. Retail food prices increased by as much or more. The larger increases in retail prices reflect increasing marketing margins for processing, transportation, and wholesale and retail trade, as well as the addition of a 28 percent value added tax. Under the old economic system, these margins had been extremely low by international standards.<sup>15</sup> This reflected both the relatively small amount of value added downstream from agriculture as well as hidden subsidies in the marketing chain as measured by low Soviet prices for these activities. Price liberalization increases these margins as downstream agents pay and receive more realistic prices. There is concern, as well, that lack of competition may be allowing processors and marketers to increase unreasonably their margins.

All other republics also allowed upward price adjustments early this year, but in most cases--such as Ukraine and Kazakhstan--other governments have intervened more heavily to maintain price ceilings. In Russia, market prices remained fairly stable in February and March, but once again increased in April with relaxation of some monetary and fiscal policies. The original upward movement in retail prices in Russia in January appears to have been too large to balance markets immediately, with excess supply replacing what had been chronic excess demand for food commodities. Because of the lack of competition in food marketing, retail prices in February were slow to come down in response to demand weakness. Instead, the tendency was to retire product from the market rather than discount prices. Price trends in Russia are being watched carefully by other states in the CIS region. If current relative prices for food in Russia prevail for the region as a whole, then agricultural production in the former USSR could prove adequate to satisfy domestic demand to a much greater extent than in the past.



The hope of the governments of this region is to minimize price increases for food by increased competition in food marketing and agricultural input supply, and restructuring and privatization of farms. Governments in the region naturally hope to control retail price increases by doing what they can to maintain the level of resources going to agriculture and relying on imports to continue to bolster domestic supplies. As the economic reform progresses, the distinction between maintaining past production levels and improving production efficiency will become more clear. Assuming that retail markets stabilize this year at consumption levels that are politically acceptable, the natural focus on maintaining quantities supplied will weaken. A case in point is meat. Given projected production declines in 1992, import requirements for meat were estimated by the Russian Government at the beginning of the year at 2.5 million tons. Following the price reform of January and the radical impact it has had on demand, large meat imports may not make sense.

At current price levels, an overwhelming share of disposable income is devoted to food consumption. Prior to the onset of the economic crisis, official Soviet data showed that roughly 30-35 percent of disposable income went to food.<sup>16</sup> Independent estimates made by Soviet researchers in the food economy were as high as 50-60 percent.<sup>17</sup> Following the virtual elimination of retail price subsidies for food at the beginning of this year, the share of disposable income spent on food now is most likely at least as high as the latter range, if not higher. With macroeconomic stabilization the top priority, the governments of this region have little leeway to lower the burden of higher food prices through either reinstatement of retail price subsidies or income support measures.

The liberalization of retail food prices has already had a tremendous impact on food consumption patterns. Consumption of commodities that used to be heavily subsidized, particularly meat and milk products, will likely drop by as much as 20 percent this year. Consumption of fruit and vegetables also possibly will decline because of declining real incomes, but a boom in private sector production of these products in 1992 could be large enough to maintain last year's per capita consumption figures. Consumption of bread and potatoes will continue to increase. Though certain segments of the population are at risk, consumption levels on average in the former USSR remain fully adequate and well above world averages for livestock products. These shifts in consumption patterns will continue well into 1993. The introduction of an adequate food safety net program for low-income people will be necessary. Only after economic stabilization has been achieved and a stable growth path attained will the consumption of livestock products begin to recover.

### *Worsening Financial Situation in Agriculture*

Since 1990, the prices farms pay for inputs and services have increased more rapidly than the prices received for output. During 1991, input prices doubled, while prices received by farms increased by a little more than half. In the first 3 months of 1992 this trend accelerated, with input prices increasing by 2-3 times as much as farmgate prices. Farms in the former USSR are in increasingly tight financial straits as a result. Their situation is not made easier by the imperative of tightening control of budgetary expenditures and the money supply. Long-run problems with the rural banking system are further complicating the situation.

In 1991, the Agroprombank of the USSR was replaced by republican level banks specialized in agricultural lending. The new republican banks basically have maintained the personnel and infrastructure of Agroprombank. Agroprombank was created as a sectoral bank closely affiliated with Gosbank, the central bank of the USSR. The new republic banks maintain close relations with the central banks in their respective republics, in most cases continuing to function largely as an arm of their finance ministries.

A commercial banking structure will prove difficult to develop in the current macroeconomic environment. Both the legal and regulatory framework for commercial banking remain underdeveloped. Many cooperative banks function largely as credit associations for shareholding members. Deposit mobilization in the countryside remains inadequate for development of a self-sustaining rural credit system.

Debt forgiveness was an integral part of the credit system in agriculture of the former USSR. In some cases farms were obliged to utilize credit to finance investment contained in annual or longer term plans. When farms were unable to repay the loans, debts were customarily postponed and eventually forgiven. In 1990 the largest debt write-off occurred, with roughly half of long-term debt and two-thirds of short-term debt forgiven. With the onset of rapid inflation, the real value of the remaining debts is shrinking and may be insignificant by the end of this year. While the problem of accumulated debt is at least temporarily subsiding, many problems in the agricultural credit systems of the CIS countries remain. Governments have not yet established the principle of financial discipline in repaying loans. Recent credit policy in Russia specifically states that new loans should be extended to farms regardless of their past credit histories. While inflation has shrunk the scale of the accumulated debts, it has also shrunk the real value of bank portfolios. This is making an infusion of new money into the system increasingly critical to keep the rural credit system afloat.

Earlier this spring farms were threatened with the prospect of not being able to line up necessary credit for working capital. In March, the Russian Government decided to guarantee interest rates to agriculture at the same 8-12 percent range that prevailed in 1991. Such rates are much below current inflation levels, and also below the 20 percent rate that the Russian Central Bank charges for inter-bank lending. Funds totaling 33 billion rubles were assigned from the Finance Ministry for lending at these rates. An additional 55 billion rubles was made available for lending through Rosselkhozbank, the Russian descendent of Agroprombank USSR, at the same subsidized rates. As of May 1, Central Bank lending rates increased to 50 percent, from 20 percent. For agricultural lending, the government will now subsidize half of the interest rates. An additional 50 billion rubles is scheduled to be loaned to farms in Russia under these arrangements. For assistance to the new private farms, 23.6 million rubles is allocated to be channeled through the Association of Peasant Farmers and Agricultural Cooperatives of Russia (AKKOR). This basically meets requirements of Russian farms for short-term credit needs this spring and summer.

Though input producers in many cases are in position to dictate prices because of the lack of competition, the underlying problem now being faced by agriculture is that past access to real resources cannot be maintained. Not only is the size of the economic pie shrinking, but it is possible that under emerging market conditions agriculture will not be able to maintain its traditional share of that pie. During the 1980's, agriculture received nearly 25 percent of all investment in the USSR. Some of this went for rural infrastructure and investment in social services that in the West would normally be financed by local government. The share in the former USSR is likely to decline somewhat in the coming years.

An apparent solution to the worsening terms of trade in agriculture would be to reinstitute price controls on input manufacturers and distributors. That approach runs a real risk of throwing the economic reform back to its starting point. The Russian Government has largely resisted this urge, but has decided to subsidize seed prices at 1991 levels and to postpone fuel price increases until after spring sowing, if not until the end of the crop year. The approach to the problem which is consistent with the economic reform is to restructure and privatize input industries and the accompanying distribution channels.

### ***Reforming Food Marketing***

Privatization in the food industry and food trade is an essential aspect of economic change in the former USSR.

Traditional food marketing channels do not allow for much flexibility. Procurement of agricultural commodities has been handled by a state monopoly. Wholesale markets as such do not exist. The location and scale of food processing facilities are inappropriate for a demand-driven market system.

The most rapid progress is expected in retail trade and the trucking industry. Privatization of smaller food processing facilities can also proceed relatively quickly. Existing commodity exchanges can serve as alternative marketing outlets for commodities if transportation and storage opportunities exist and if traditional state sales quotas are reduced.

The Russian Government has chosen not to abandon sales quotas for agricultural commodities this year. Quotas have been greatly reduced, however, for all commodities with the exception of grain. Furthermore, sales to the State will now be made at "prevailing market prices," rather than at unattractive state-set prices. Whether the reduction in obligatory quotas opens up other marketing possibilities for farms remains to be seen. At present, an alternative marketing infrastructure is at the very initial stages of formation.

In the meantime, in many areas of Russia and other CIS countries organizations very similar to marketing cartels have been established that link management of local state and collective farms with neighboring procurement, food processing and marketing facilities. Such arrangements can currently control the overwhelming share of food marketed in their particular areas. These arrangements need to be broken down if the benefits of moving to a market system are to be enjoyed by consumers. Privatization of economic enterprises and reorganization of farms will be essential to achieve this. In addition, efforts could be made to introduce more cross-regional competition in food marketing.

The way imports are handled will influence the speed of change in food marketing. Agricultural imports, most of which are moving under credit or credit guarantee programs from exporting countries, are still largely controlled by the governments of the CIS. A natural tendency would be to move imported commodities to consumers through the inherited state marketing monopolies. An alternative would be to offer imported commodities for sale on the numerous commodity exchanges which have sprung up in the last 2 years. This would not only invigorate new marketing channels, but would help define appropriate market prices.



## *Land Privatization and Farm Restructuring*

The process of reorganizing existing state and collective farms and creating conditions for the establishment of private family farms is now well underway in the region. A major hurdle for this process, as with other aspects of agricultural reform, is that it is occurring under inauspicious macroeconomic conditions. While support to private farmers is essential, it is also clear that a good number of the newly created private farms could run into serious financial difficulty. To be consistent with the philosophy of the economic reform, it is important that farm restructuring and privatization be carried out as much as possible in accordance with market principles. A later section analyzes land privatization in detail.

## *Interstate Trade*

The declining authority of the CIS to coordinate economic policy and interstate economic relations leaves in doubt the possibility of improved trading arrangements among these countries. Prior to the breakup of the USSR, 20 percent of GDP was accounted for by interrepublic trade. The share of domestically produced agricultural commodities that crossed republic boundaries was only half as large, at 10 percent. Relatively little grain, meat, or milk products moved out of producing republics. For instance, in 1989 only 5 percent of domestic grain production moved across republic boundaries. The shares for meat and milk products were each 5 percent also. (See grain and livestock sections.)

For some commodities more limited by climate, the share of interrepublic trade was higher. This was true for sugar, cotton, vegetable oil, and sub-tropical products such as tea and citrus.

The generally limited amount of interrepublic trade in agricultural commodities prior to the breakup of the USSR was heavily compensated for by foreign imports. Foreign imports of grain in 1989 were four times larger than interrepublic trade of domestic grain. Foreign imports of meat and milk were as large as interrepublic trade of those commodities produced domestically. Some regions were

more dependent than others on outside supplies to maintain consumption of grain and livestock products. These included the republics of Central Asia and the Transcaucasus region, and the Non-Black Soil Zone of Russia. Within the Non-Black Soil Zone, major urban centers such as Moscow and St. Petersburg were particularly dependent on non-Russian supplies of livestock products.

Increased disruptions in interstate trade in the last year has effected food supply in deficit regions. For livestock products the regions listed above have been most seriously affected. Bread and flour supplies appear to have been well maintained at the local level in Russia and other states of the CIS, at least through the end of 1991. The states of Central Asia and the Transcaucasus were vulnerable to declines in bread supplies this spring, though comprehensive information on their situation is not available as of April 1992. Traditional flows of sugar and vegetable oil out of Ukraine, primarily to Russia, have also been significantly affected by the changing trade relations among these states.

The situation with agricultural inputs is more complex than that for agricultural commodities. Roughly half of mineral fertilizer produced in the former USSR was traded across republic boundaries in 1990. Russia, Byelarus, Kazakhstan, and Uzbekistan were the important net exporters. Approximately 60 percent of tractors produced domestically were traded across republic boundaries. The largest net exporters were Byelarus and Ukraine. In the case of grain combines, Russia was the sole producer within the former USSR, providing these machines to all other republics.<sup>18</sup> Foreign imports played a relatively modest role in supplementing interrepublic trade of agricultural machinery.

Improvements in how interstate trade is carried out need to be made to avoid potentially serious declines in input availability in 1992/93. Because of the complicated problem of monetary reform being undertaken in many CIS states, the smooth flow of goods throughout the region does not appear likely in the short run. (Edward C. Cook)



## The Process of Russian Land Privatization in 1991 and 1992

In most of the former USSR, independent family farms were abolished by forced collectivization in the early 1930's, or in the case of the Baltics and parts of western Ukraine, Byelarus and Moldova, in the 1940's. Now, reformers in all of the former Soviet republics justify the reestablishment of private farms for numerous related reasons. Politically, they hope to create an independent rural middle class. Socially, it is argued that a return to family farms would inculcate an independent work ethic among Russian youth. Economically, they hope to create better incentives, by tying rewards closer to work and good management. Environmentally, it is argued that the "land needs a master" to care for it for future generations.

Of the CIS republics, Armenia had the most family farms as of January 1, 1992 (table 3). Progress has also been significant in Georgia, which is outside the CIS. There collective farms in mountainous areas were decomposed into almost 20,000 small plots as early as 1990. In Lithuania, Latvia, and Estonia, which were also pioneers, adoption of the principles of restitution and compensation to former owners or their heirs is slowing restructuring. So is a concern that the transition may disrupt agricultural production.

The rest of this section deals only with the privatization and restructuring of farms within the Russian Federation. There, the number of family farms (or in Russia, individual peasant farms, or *krestyanskie khozyaistva*) increased by a factor of ten during 1991. This growth accelerated in the first few months of 1992, driven by governmental implementation decrees issued in December, and by a gathering momentum. The economic and political process of privatization will undergo fundamental change as general economic reform reduces the long-standing sellers' market for agricultural commodities.

At the beginning of 1992, there were approximately 50,000 family farms registered in Russia. They occupied a bit over 2 million hectares. In 1991, these family farms had increased in both number and total land area by a factor of ten. In 1992, their number nearly doubled by in the first 3 months, to 94,946 registered peasant farms, comprising an area of 3.9 million hectares.<sup>19</sup>

In late 1990, the Russian parliament and its more conservative parent congress passed basic legislation that established the individual peasant farm as a legal entity.<sup>20</sup> Also adopted were laws which allowed aspiring individual farmers to receive land from a special redistribution reserve established mainly from land which was "poorly farmed" by collective and state farms. To identify this

land and help supervise the land redistribution process, the Russian government created the State Committee for Land Reform and Support of the Peasant Farm. During 1991 this committee in turn established local land reform committees in all oblasts (like American states) and most of the rayons (counties) of Russia. Rayon government councils were assigned the responsibility, along with professionals in the local land committees, of responding to applications for land. Rayon decisions could be appealed to the oblast government.

In principle, Russian legislation also passed on to each oblast responsibility for determining the amount of land that applicants could receive free of charge as their "own" and, also, the price at which a farm could buy additional land. In theory, each oblast was also supposed to establish the maximum area that individual peasant farms could own, to correspond generally to the area that could be farmed by a single family's labor, depending upon the natural conditions and type of agriculture in each oblast. The meaning of ownership in the legislation was ambiguous, it remains so, and is discussed further below. The legislation provided that land in excess of the ownership maximum could be leased by farms with hired labor.

The actual sizes of existing peasant farms range from an average of 21 hectares (about 50 acres) in the North West and North Caucasus, to 87 hectares (215 acres) in the arid Southern Volga Region. Individual farms specializing in truck crops near cities are as small as 1 hectare, while those specializing in grain production are as large as several thousand hectares. The average size of all 94,946 farms established by April 1, 1992, was approximately 41 hectares (about 100 acres).<sup>21</sup>

Table 3--Private farms in CIS republics, Jan. 1, 1992

Republic	Number	Area	Average size
	Units	-----Hectares-----	
Azerbaijan	9	4,363	47
Armenia	164,542	209,311	1
Byelarus	739	15,348	21
Kazakhstan	3,333	793,500	238
Kyrgyzstan	4,070	103,084	25
Moldova	5	8	2
Russia	49,770	2,014,108	40
Tajikistan	4	62	16
Turkmenistan	100	1,045	10
Uzbekistan	1,868	13,696	7
Ukraine	2,098	39,737	19

Sources: Interfax for other than Russia; Russian data from State Land Reform Committee.



Despite the rapid growth of private farms, the bulk of agricultural land and other productive resources remains in approximately 26,000 collective and state farms which on the average each employ 300 to 400 people working 6,000 to 9,000 hectares of agricultural land. This is still true, even after accounting for the area belonging to farm cooperatives and livestock collectives. These are quasi-private legal categories resulting from the 1988 USSR Law on Cooperatives; they also grew in number during 1991 (table 4).<sup>22</sup> By January 1, 1992, the area encompassed by the individual farms, plus the additional

2.1 million hectares farmed by 2,251 farming cooperatives, together equaled only 3 percent of Russia's 130 million hectares of plowed land. Together with an additional half-million hectares (mostly range land) worked by the 3,880 livestock collectives, new private farming accounted for only 2 percent of Russia's 211 million hectares of land in agricultural use. Put another way, the area of all the new farms to be worked, full time, was about equal to the total area of household plots traditionally worked by rural residents mainly in their spare time.

Table 4--Progress of the land reform in Russia: Numbers, area, and outstanding requests for private activities

Type of land use	1/1/91 Total	1991 Increase	1/1/92 Total	2 month increase	3/1/92 Total
<b>I. Transferred to individual citizens as:</b>					
Peasant farms					
Number (units)	4,405	45,365	49,770	20,775	70,545
Area (1,000 hectares)	214.4	1,799.7	2,014.1	935.2	2,949.3
Outstanding requests (units)	--	--	--	--	24,479
Collective orchards					
Number of families (1,000)	8,533.3	4,059.3	12,592.6	449.9	13,042.5
Area (1,000 hectares)	574.9	372.4	947.3	36.4	983.7
Outstanding requests (1,000)	--	--	--	--	1,484.0
Collective gardens					
Number of families (1,000)	4,580.4	6,685.6	11,266	318.3	11,584.3
Area (1,000 hectares)	344.7	443.3	788.0	26.5	814.5
Outstanding requests (1,000)	--	--	--	--	1,116
Personal household plots					
Number (1,000)	16,380.3	2,153.8	18,534.1	58.3	18,592.4
Area (1,000 hectares)	3,243.5	532.4	3,775.9	40.2	3,816.1
Outstanding requests (1,000)	--	--	--	--	84.6
Dacha construction					
Number (1,000)	28.2	67.0	95.2	6.9	102.1
Area (1,000 hectares)	2.3	7.9	10.2	0.7	10.9
Outstanding requests (1,000)	--	--	--	--	6.2
Individual housing lots					
Number (1,000)	--	343.9	343.9	92.4	463.3
Area (1,000 hectares)	--	48.5	48.5	12.0	60.5
Outstanding requests (1,000)	--	--	--	--	264.0
Total receiving parcels					
Number of families (1,000)	29,526.6	13,355.0	42,881.6	946.5	43,828.1
Area (1,000 hectares)	4,379.8	3,204.2	7,584.0	1,051.0	8,635.0
Outstanding requests (1,000)	--	--	--	--	2,979.3
<b>II. Livestock collectives</b>					
Number (units)	97	3,783	3,880	167	4,047
Area (1,000 hectares)	14.4	420.6	435.0	22.4	457.4
Outstanding requests	--	--	--	--	183
<b>III. Agricultural cooperatives</b>					
Number (units)	797	1,454	2,251	174	2,425
Area (1,000 hectares)	252.0	1,850.7	2,102.7	31.0	2,133.7
Outstanding requests	--	--	--	--	324
<b>IV. Special fund for redistribution</b>					
Total Area (1,000 hectares)	--	--	--	--	12,948
Including agricultural land	--	--	--	--	9,608
Including plowed land	--	--	--	--	5,758
<b>V. Land transferred to rural population centers:</b>					
Total area (1,000 hectares)	--	--	--	--	26,590
Including agricultural land	--	--	--	--	17,647
<b>Total transferred land</b>	<b>4,646.2</b>	<b>5,475.5</b>	<b>10,121.7</b>	<b>1,104.4</b>	<b>11,226.1</b>

-- = None or negligible.



## ***Factors Affecting Decollectivization***

Several political, social and economic factors have held and continue to hold back the privatization of farming in Russia. However, many of the considerations affecting this process are changing rapidly.<sup>23</sup>

### **Constitutional Right to Own Land as Private Property.**

Having experienced past campaigns of the central government, rural people remain suspicious that Moscow's approval of new private activity in agriculture might change. The failure of the August 1991 coup, whose leaders had opposed the agrarian reforms, the ascendancy of the reformist government of Boris Yeltsin, and the outlawing of the Communist party, help reduce, but do not eliminate, the perception of this risk. This is particularly true to the extent to which people think the Yeltsin government may be short-lived.

One development which would increase the security of private farming would be the constitutional establishment of full property rights for land. On April 4, 75 percent of land farmed by individual peasant farms was held either by long run leases, or proprietorship (*vladenie*) with rights to use and bequeath. Of 95,000 such farmers, 40,000 had private ownership (*chastnaya sobstvennost'*) rights to over 1 million hectares. But ownership even of these hectares was limited. The Russian word for private property theoretically includes the right to sell to private persons. This word survived the December 1991 session of the conservative Russian Federation Congress of the parliament) only after it later amended a 10-year moratorium on sales to anyone but the county governments. This moratorium was inserted into the Russian constitution as Article 12. As of May 1992, this provision is still there, despite several attempts by the Yeltsin government to shorten or eliminate the moratorium, and remove size limitations on ownership. If the government survives, new elections are likely to make the congress more progressive, or the moratorium could be removed by referendum. Decrees issued by Yeltsin in December ratify existing trading and selling by farm workers of shares that represent the land of the state and collective farms on which they work.

Restrictions on the ability to sell land increase risk that investment (in buildings, soil, and irrigation) could not be recouped in the case of illness, retirement without children, or other situations. The lack of a legal land market also hampers restructuring of the large collective and state farms into efficient units, hampers tax assessment, and constrains the mortgage finance process.

However, Russia is a large and varied place, and events may be superseding law. A World Bank delegation was

told that there are farms in remote parts of Vologda oblast where for all practical purposes collective farms have been effectively carved up by the few people remaining there -- so that it was accepted which families "own" what part of the forest and the rivers. There are also stories of new commercial banks using land as collateral. In February, *Izvestiya* reported that farmland was being advertised on a Moscow commodity exchange. Leases are arguably legally tradeable. Minister of Agriculture Khlystun noted in December that there was an "ugly" underground trade in land accompanied by "big bribes."<sup>24</sup> While these spontaneous occurrences argue that a land market is natural, its constitutional illegality threatens its firm and efficient development.

**The Opposition of Some Local Officials.** The implementation of the agrarian reform varies greatly by oblast. The agrarian reform is in many ways, "from top down." Where traditional interests are still in place, especially at the oblast level, they frequently hinder the implementation of the reforms. Although legally entitled to leave employing farms and take a share of land and equipment with them, when workers on both collective and state farms try to exercise their rights they often receive remote parcels which are of poor quality, and then, only after prolonged effort. The legal and other aspects of the reform are truly complex and excuses can easily be found for non-action.

The central federation government does have some means of implementing its policies, despite the growing autonomy of the oblasts and other constituent areas (kray, autonomous republics, etc.). The Ministry of Agriculture (now including the Land Reform Committee), the State Property Committee, and Operational Control (by which Moscow monitors the provinces) all have local organs. The heads of these organizations, Viktor Khlystun, Anatoliy Chubays, and Valeriy Makhharadze, are all convinced advocates of private farming.

In December 1991, the federation government issued two important decrees to speed up implementation ("On Urgent Measures to Implement Land Reform in the Russian Federative Republic," and "On the Procedure for Reorganization of Collective and State Farms").<sup>25</sup> Under Boris Yeltsin's emergency authority, these became law after one week, when the parliament did not strike them down. Among many other things, these decrees set deadlines to complete actions previously delegated to lower levels. These decrees specified tough penalties for obstruction of the procedures of the land reform. Score is being kept. As of April 1, 1992, 79 instances of procrastination and 336 cases of breaking the land law had been identified. Fines, in the case of farm managers, 3 months salary, totaled more than 5 million rubles.<sup>26</sup>



However, co-option is rapidly becoming another way to win support of the traditional local power structure.

In oblasts where the progress of privatization has proceeded most rapidly, members of the party and government administration (*nomenklatura*) are often in the forefront, sometimes as the local heads of AKKOR.<sup>27</sup> Five of nine individual farmers encountered by an American delegation in eastern Sverdlovsk oblast in September 1991 were former collective or state farm leaders. At a meeting of all the directors in one rayon, one older state farm director drew laughter for his candid remark. His son already had a private farm. "Don't you see, I am a director and I can't quit yet until I've helped him get enough machinery to farm!" At some point, privatization takes on somewhat of a land rush quality--as individuals rush to take land and equipment before the best is already taken.

#### Jealous Neighbors and Anti-Kulak Harassment.

Prospective private farmers know that individual farms experience sabotage and arson by neighbors, either for ideological reasons or out of jealousy. Incidents of this kind have reportedly diminished in regions where private farmers have become more plentiful, and as ideology wanes. However, if the decline of ideology and the increased incidence of privatization by the official *nomenklatura* are blunting anti-kulak feelings, private farmers at AKKOR's annual conference in February 1992 still felt it necessary to demand the right to use firearms to protect their property. Applicants were also reported to be weighing the advantage of land located close to transportation, against the increased risk that more visible products would be stolen.

Growing Universality of Ownership of Small Land Holdings. The general privatization going on in the economy (e.g., housing and small enterprises, and formation of stock associations in the larger enterprises) gives more people an interest and acceptance of private ownership. As concerns land, a large number of rural and urban people are getting possession (some ownership) of small land parcels.

A great share of the local land committees' time, particularly near urban areas, was spent allocating suburban tracts. In 14 months after January 1, 1991, new garden and kitchen plots were carved out of state land and turned over to 11.5 million Russian families. This approximately doubled the number of families who had them. In addition, another half million families received parcels to construct primary or summer homes. In the same period, land committees granted deeds to over 2 million more household plots, bringing the total number to

nearly 18.6 million. In addition, nearly 27 million hectares was transferred by the State to municipalities, who themselves were empowered to issue land titles.

According to the state land committee only a small part of these holdings are formally held as full property (*sobstvennost'*).<sup>28</sup> Half a million or about 4 percent of those having collective gardens had *sobstvennost'*, 200,000 (2 percent) of kitchen gardens had it, somewhat over 3 percent of household private plots, 2 percent of new dacha sites, and 10 percent of individual housing lots. More of the new parcels are allocated as full property. Others having lesser property rights might assume that their land could be transferred into this category, eventually allowing them to benefit from its sale. Polls show the acceptability of full private ownership of land (including sale rights) is growing and is highest among city people.<sup>29</sup>

"Disinterest" of Farm People. Polls have shown the reluctance of the majority of farm people to break with the state and collective farms and take up individual farms. Detractors say that after out migration of the most able, most present day farm people lack the psychological desire to farm independently. It is apparent that many farm workers would prefer to work for guaranteed wages. For many, it is hard to conceive of rural life without the infrastructure (housing, social activities, clinics, kindergartens) which come with working on the state and collective farm. Faced with a stark choice of current life, versus the unknowns of the individual farmstead, many understandably choose the known. Other options, however, are developing.

Only 27.7 percent of the June 1, 1991, sample of 24,008 people who had registered individual farms were people who had come immediately from living on state and collective farms. Although many new individual farmers were returning to the countryside where they had been born, and some had specialized agricultural training, many others are described as "adventurers" seeking the good life (and good subsidies!).

It is apparent that a large part of the rural population has not been disinterested, but rather has expanded its traditional interest in private subsidiary plots. Previous limits on both livestock holdings and area farmed within the state and collective farm have been progressively eroded since the late 1970s. Some of this activity was formally organized as agricultural collectives. In some cases, especially in depopulating regions where there are only a few families with able-bodied workers, it has developed informally that workers use farm assets essentially as their own. (One collective farm member is quoted by *Moskovskie novosti*, as saying,



"At the collective farm there is a feeding trough for a private plot and equipment ready at hand."<sup>30</sup>) Knowledgeable Russian observers say that earlier waves of peasant farms, started first by outsiders, and then by the *nomenklatura*, are being followed by a third wave of rank and file farm workers.

Lack of Complementary Off Farm Inputs. Workers on state and collective farms cite the lack of crucial inputs as the greatest reason for not taking up individual farms. Russia's agriculture generally involves more land per worker and a much greater use of purchased inputs than China's agriculture, which was successfully reformed by rearranging the relationship between the land and the labor of the peasant household.

Compared with other agrarian reforms, Russia has available much more arable land. For instance, on April 1, 1992, there remained unallocated almost 6 million hectares of plowed land, out of a total of 10.3 million hectares of agricultural land, and 15.6 million hectares of general land in the special reserve for redistribution. Thus, once legal existence is established, the principal issue of the land reform involves access to markets for off-farm inputs. This immediately involves the question of general economic reform.

The non-land inputs problem is, not just one of credit. The government of Russian President Yeltsin established special credits through AKKOR to help registered private farms obtain equipment and building materials.<sup>31</sup> Allocated one billion rubles, AKKOR reportedly leveraged bank credits of much more. However, for individual farmers, established credit lines sometimes went unspent because new machinery and materials were not to be found. (Credits were not available for used machinery.)

The inputs supply system in the former USSR was traditionally problematic, and it became increasingly chaotic in 1991. A 1991 survey of over 20,000 individual farms found that for each 100 peasant farms there were only 47 tractors, 5 combines, 17 plows, 12 planters, and 3 harvesters. The risk of not receiving critical seed or fertilizer is less important to a worker who decides to remain a salaried state farm tractor driver, than to a potential independent farmer.

Individual farmers have tended not to farm absolutely alone, but rather in groups of family members and friends who pool their equipment. Usually some of the equipment is new, and some of it used, acquired from the state or collective farm with which the private farmers continue to have ties, including supply and purchase contracts. Often the equipment is broken, and repaired by its new owners.

The management of individual state and collective farms, taking their cue from rayon and oblast authorities, often hinder the establishment of individual farms, by refusing to rent the service of otherwise idle equipment or sell redundant used equipment. Such refusals are especially important because most existing farm equipment is controlled by state and collective farms, production of machinery is declining, and a competitive system of farm suppliers of agriservices does not yet exist.

In March 1992, the Russian government told AKKOR it would allocate 6.5 billion rubles to individual peasant farms in 1992. One and a half billion of this was to be made available in the first quarter of the year, and the remaining sum was to be indexed for price inflation. These funds were to be available at 8-12 percent nominal interest, which is negative in real terms and far below the rates of the emerging commercial banking system.<sup>32</sup> In February the Minister of Agriculture was quoted as promising that one-half the tractors produced in 1992 would go to private owners.<sup>33</sup>

#### ***December Decrees Give Options for Restructuring the State and Collective Farms***

According to the December decrees, each of the roughly 26,000 state and collective farms, plus other agricultural firms must choose a new organizational form, re-register, and come into compliance with the Russian law on enterprises and entrepreneurship. They were to have until March 1, 1992, to decide upon their new form of organization, and until the end of 1992 to re-register.

The period after the December decrees were released has witnessed a continuing battle among political forces. At first, the decrees did not seem to admit the possibility that state and collective farms could continue to exist. Very early, however, the government conceded that the process was voluntary and that only the approximately 2,500 state and collective farms which were unprofitable would have to reorganize. Soon, even this statement was modified, to say that only the perennially money-losing farms had to reorganize. These were judged to be about 1,000 farms -- particular cases of drought and flooding having caused the others to lose money in 1991.

Four possibilities were presented for re-registration. The first, which Khlystun said he prefers, has the state or collective farm break up entirely, into an association of individual private farms, each of which is a legal entity with its own bank account, and where the previous farm core becomes a service cooperative. The second possibility is the joint stock company (*aktsionernoe*



*obshchestvo*). A third, is the production cooperative operating on the share (*dolya*) basis, with separate units having only accounts internal to the production cooperative. In all these cases, either real or paper shares of both the land and capital assets would be determined and divided among the workers and pensioners. In the production cooperative, members would contribute the shares of land and property they have received from the state or collective farm. The fourth choice is for the collective or state farm to continue operating as it does now.

Combinations of these are possible. Khlystun gave an example of some families taking possession of their share of the physical assets of a state or collective farm and setting up individual farms in an association, while perhaps a majority would choose to continue as worker/members of a production share cooperative.

Apparently, few state and collective farms actually met the March 1 deadline to decide how they would re-register. Reports on the choices made by state and collective farms as to how they would re-register, have been aggregated in different confusing ways. By April 1, 1992, official data showed that only 15 percent of 13,130 collective farms had chosen.<sup>34</sup> Of these, 462 chose to become associations of individual farms and small businesses, 817 chose stock associations (*aktsionnye obshchestva*), and 690 chose "other." Only 6 percent of the 25,876 state farms and other state agricultural enterprises had named their choice as of April 1. Of these, 292 chose associations of private farms or businesses, 738 chose to become stock associations, and 488 chose "other."

The area represented by the collective farms that chose their preferred future type of organization was 14.3 million hectares, about 11 percent of the total area in collective farms. The area of state farms and other state agricultural enterprises that chose their preferred organizational type by April 1 was 14.5 million hectares, representing about 3 percent of their total area. The percentage of farms that decided to remain unchanged as state and collective farms has been variously represented as 9, 7, 12, 24, and 40 percent!

With such unclear results available from only 15 percent of state and collective farms, it is hard to predict the ultimate result of re-registration. On March 6, 1992, soon after the deadline, the government issued a "back pedaling" decree, affirming the right of profitable state and collective farms to continue as they are, provided a majority of workers vote to do this.<sup>35</sup> Given the decree, it may be easiest for farms that had not previously decided to simply choose to do nothing. On the other hand, there

is still apparently time to decide, and a number of factors are still at play.

### *Evolving Political Dynamic*

Despite its strategic retreats, the Yeltsin government seems committed to private agriculture and has taken measures to continue implementation of the privatization and restructuring. It is worth reviewing here.

(1) It had empowered individual farmers by making their activities legal, and given them access to land and other equipment. The March 6 decree clearly allows state and collective farms to continue, but also clearly repeats the right of the individual to leave, with a share of property. Local farm and government leaders have to respond to requests for land by individuals, or face fines which are being levied.

(2) As the edifice started to crack, in some regions a land rush mentality has begun to co-opt the *nomenklatura* itself. Providing for land for soldiers leaving the military and assigning ex-military officer and Vice President Alexander Rutskoi the special portfolio for agriculture can be interpreted as measures to co-opt the military.

(3) People who were retired or who do not themselves wish to farm independently are also entitled to pieces of property. The December decree specifically authorized the trade, sale, or renting of these properties, acknowledging practices which had apparently sprung up autonomously during 1991. The creation of mixed options, such as renting out one's property share to an entreprenuring family member or friend, while working as a laborer or entering retirement, creates additional groups interested in collective and state farm dismemberment.

(4) The December decrees also set up apparatuses for transferring the state and collective farm social infrastructure to the village and rayon governments. Splitting the business and local government functions makes it easier to imagine life without the state or collective farm.

(5) The December decrees also require state and collective farm management to recognize the opportunity cost of the land they use, beyond that owned and contributed by their working members, by paying a land tax. This tax goes in part to support the local governments.

(6) Non-profitable farms are to be liquidated. The key is for the Russian Government to keep up its general commitment to approximate budgetary balance. This will



be difficult, and initial indications are that it will be stop and go.

(7) The State continues to offer inputs and credit to individual farms, on a preferential basis.

(8) In addition, the government committed itself to create private competitive farm supply and marketing sectors. Two specific measures promote this. One is the clear enunciation of Yeltsin's January 29, 1992, decree saying that it is legal for citizens to engage in middleman retail or wholesale trading activities.<sup>36</sup> These activities had previously been labeled "speculation."<sup>37</sup> Much in the public ideology still needs to be changed if competition in trade is to grow. Secondly, the government hopes through the December decrees to establish an agriservices industry by breaking these functions out of the state and collective farms. Many parts--transportation brigades, veterinary shops, repair shops, etc.--have already become lease arrangements that offer their services within their base farm and outside of it.

#### *Economic Evaluation*

Danger of the "State Peasant Farm." In January, R. I. Khasbulatov, head of the Russian parliament and Yeltsin opponent, judged that only a fourth of the then registered individual farmers were full fledged. He also charged that 40 percent of the land provided to these farmers was not being used.<sup>38</sup> Others have charged that scarce equipment is being hoarded by those who have no land.

Much of the criticism of the economic viability of the newly established individual peasant farms is clearly warranted (so, however, is criticism of the state and collective farms). Individual peasant farms are being established by administrative means, though an AKKOR organization that is increasingly criticized as bureaucratic. It is administrative means, including easy credit and planned allocation of both inputs and marketing orders, from which Russia needs to rid itself if it hopes to lower budget subsidies and create efficient agriculture.

Even proponents of private farming criticize the affirmative action process. The danger of creating what

they call the "state peasant farm" increased when in December 1991 the government first assigned quotas (*goszakaz*) to the individual peasant farms, equal to 25 percent of their production. In February, the government and AKKOR agreed to oppose the establishment of any private farm which did not market in this way.

Privatization in the New Macroeconomic Climate. The relationship that the Russian Government has with AKKOR, and that AKKOR has with the new private farming sector is administrative. However this may be becoming moot. This is because these relationships are based on the economics of shortage and rationing. The price liberalization and stabilization policies being enacted by the Yeltsin-Gaydar government have brought about general surpluses of both farm commodities and farm inputs.

The staged reduction of budgetary subsidies, which have accounted for 10 percent of GDP, has caused a substantial decline in demand for food. As has happened in Eastern Europe, growing unemployment and decline in income will no doubt further decrease demand. Russian farming will have to go through much adjustment, including what is produced, and where. Existing production input proportions and farm sizes will be under constant pressure. Some of the individual farms established on marginal reserve land will prove economically unviable. No doubt the attractiveness of one's own individual farm will decline so that only the more hardy will be attracted to it. On the other hand, inputs will be more available, perhaps increasingly released from collective and state farms, no longer hard pressed to meet marketing quotas, faced instead with unsold products.

Functioning markets for land, labor, and capital are needed to make these adjustments possible. No doubt, the State will continue to intervene, as happened in western countries which have faced similar (though much more protracted) transitions. Seen in this light, the state's affirmative action program for individual peasant farms may be seen as intervention to "prime the pump" of property relations and markets, so that there would be something to regulate rather than administer. (Kenneth Gray)



## New Currents in Agricultural Inputs Use

In 1991, investment in land improvement and deliveries of agricultural machinery and chemical inputs fell. The drop was a continuation of a downward trend in gross input use that began in 1986 when the planned amount of land improvements was cut. The cutback intensified in 1988 when state subsidies were first reduced in an effort to introduce elements of the market economy into the agricultural inputs sector. Agricultural inputs in the former USSR, however, have been chronically poor in quality and assortment and their state-controlled distribution inefficient and imbalanced. Because of these deficiencies, the marginal productivity of such inputs is probably not high. As a result, reductions in availability and use should not have too severe a negative effect on output. The decrease in input use might also have increased the effectiveness with which agricultural producers employ the now scarcer inputs. Ultimately the adjustment process being made may substantially increase the performance of agriculture and supporting sectors.

Prices of agricultural inputs increased dramatically when they were freed temporarily in January 1991, despite worry about monopoly in these industries which threatened recontrol of prices. Current policies concerning pricing and interpublic and foreign trade in chemicals and agricultural machinery reflect the current macroeconomic imbalance and debate about prices and exchange rate liberalization in general. Land and agrochemical use also

reflect new voices of concern, not about the gross volume of agricultural production, but about protection of the environment and food safety.

### Costly Land Improvement Cut and Decentralized

The total amount of new irrigation and land drainage in the former USSR significantly decreased after 1986, although 10 to 11 billion rubles continued to be spent annually (table 5). In 1990, compared to 1989, commissionings of newly irrigated land dropped by 20 percent, and drained land by 22 percent (table 6). Data are not available for 1991, but all indications are that the decline continued. The total area of newly drained and irrigated land in 1990, 635,000 hectares, was just one-half the area commissioned annually in the first half of the 1980s.

Continuing this trend, the once powerful USSR Ministry of Water Construction was disbanded in 1991. Its replacement in Russia, *Rosvodstroy*, does not have the authority to originate new projects; instead the new organization is supposed to work only in the service of farms. Earlier, the State had assigned significant funding authority to the ministry, which contracted work from other parts of itself. Rural water resource investment was steered less by rural interests than by ministerial interests.

Table 5--Irrigated and drained land, former USSR republics

Republics	Irrigated						Drained					
	1980		1985		1990		1980		1985		1990	
	Year end	Commis- sioned	Year end	Commis- sioned	Year end	Commis- sioned	Year end	Commis- sioned	Year end	Commis- sioned	Year end	Commis- sioned
1,000 hectares												
Russia	4,994	260	5,805	281	6,159	105	5,891	252	7,026	303	7,398	162
Ukraine	2,013	108	2,456	102	2,600	44	2,539	139	2,640	133	3,220	71
Byelarus	163	13	159	10	149	3	2,717	105	2,966	103	3,229	85
Moldova	217	17	269	12	292	17	42	2	49	1	62	1
Kazakhstan	1,961	79	2,172	68	2,308	24	-	-	-	-	-	-
Uzbekistan	3,476	108	3,930	78	4,155	16	-	-	-	-	-	-
Kyrgyzstan	955	10	1,009	12	1,032	2	-	-	-	-	-	-
Tajikistan	617	12	653	13	694	4	-	-	-	-	-	-
Turkmenistan	927	22	1,107	25	1,245	4	-	-	-	-	-	-
Armenia	274	6	299	6	305	1	7	-	7	-	7	-
Azerbaijan	1,195	16	1,318	22	1,401	8	-	-	-	-	-	-
Georgia	409	10	447	9	466	7	152	6	151	6	162	5
Lithuania	27	3	37	3	43	-	2,652	84	2,886	88	2,987	42
Latvia	17	2	17	1	16	-	1,845	31	1,960	45	2,069	21
Estonia	11	1	11	-	11	1	1,006	29	1,085	14	1,168	11
Total	17,487	667	19,951	642	21,215	236	16,851	649	19,070	693	20,302	399

Source: *Narodnoe khozyaistvo, SSSR*, 1991



Table 6--Irrigated and drained land, former USSR

Year	Irrigated		Drained	
	Yearend	Commissioned	Yearend	Commissioned
Million hectares				
1970	11.1	.396	10.2	.815
1975	14.5	1.180	13.7	.982
1980	17.5	.650	16.9	.648
1981	18.0	.643	17.0	.696
1982	18.6	.637	17.5	.685
1983	19.1	.714	18.1	.728
1984	19.5	.676	18.6	.691
1985	20.0	.642	19.1	.693
1986	20.5	.614	19.5	.700
1987	20.5	.549	19.4	.633
1988	20.8	.403	19.8	.610
1989	21.1	.296	20.1	.514
1990	21.2	.236	20.3	.399

Critics point out that although billions of rubles were spent by the State on projects to increase agricultural production, less than one third of all Russian farm people have running water. Many farm settlements have no local water at all, and have to rely on outside deliveries. Farm settlements in general lack sewage systems.

Proponents continue to argue that land melioration is necessary in order to compensate for land withdrawn from cultivation. In 1990, sown area in all republics of the former USSR was 3.5 million hectares less than in 1988, and 9.3 million less than in 1980. Although the land withdrawn annually for nonagricultural use amounted to 76,000 hectares, this is the equivalent of 12 state or collective farms. In the Non Black Soil Zone (a declining farming region similar to New England in American agriculture), 5 million hectares of plowland has been taken out of production since the end of World War II. In this region approximately 100,000 hectares is now returned to forest annually, largely because labor is insufficient to cultivate it.

Advocates also argue that approximately two-thirds of the agricultural land in Russia suffers from insufficient and unpredictable rainfall. An additional area of hundreds of millions of hectares is swampy, and there is land that is rocky, overgrown, susceptible to erosion, or needs drainage, lime, or gypsum. Only about 5 percent of Russia's arable land is drained or irrigated (table 7). According to proponents' estimates, 79 percent of farm land, 77 percent of natural hay meadows, and 90 percent of pastures need improvement. Over 20 percent of farm land is susceptible to wind erosion and water erosion by spring runoffs, rain and improper irrigation.<sup>39</sup> Soil fertility has also diminished continuously in many areas, in

spite of the increasing (until 1988) use of mineral fertilizer.

However, the Russian Federation is endowed with much agricultural land. Throughout the world, land is withdrawn from agriculture and agriculture operations become more intensive and specialized in response to population shifts and economic developments. The vast amount of land improvement that could be undertaken must be balanced against its cost. It is important that investment in land improvement be complemented by the necessary labor, machinery, transportation resources, etc., to make the investment pay. Often when investment went according to central plan, rather than at the paid request of farms, this was not true.

Critics point out that under the direction of central ministries the efficiency of irrigation and drainage has been dropping steadily. Every year millions of hectares of ameliorated land are untilled; nearly a million hectares are without water, although on the land registries they are irrigated. Opponents of massive state land improvement projects observe that over 20 percent of farms of the former USSR experience lower grain yields than farms on non-ameliorated lands. Half of the farms harvest fewer vegetables from an irrigated hectare than from a nonirrigated one. According to the same source, in 1986-89 one ruble of investment in land improvement generated

Table 7--Land availability, former USSR republics, 1990

Republic	Arable land	Sown area	Irrigated land	Drained land
Million hectares				
Russia	131.8	117.8	6.3	7.4
Ukraine	33.4	32.4	2.6	3.2
Byelarus	6.1	6.1	.1	3.2
Moldova	1.7	1.7	.3	.1
Kazakhstan	35.5	35.2	2.3	--
Uzbekistan	4.5	4.2	4.2	--
Kyrgyzstan	1.4	1.3	1.0	--
Tajikistan	.8	.8	.7	--
Turkmenistan	1.2	1.2	1.2	--
Armenia	.5	.4	.3	--
Azerbaijan	1.6	1.5	1.4	--
Georgia	.8	.7	.5	.2
Lithuania	2.3	2.2	--	3.0
Latvia	1.7	1.6	--	2.0
Estonia	1.1	.9	--	1.2
Total	224.4	208.0	21.2	20.3

-- = None or less than 50,000 hectares.

Sources: *Narodnoe khozyaistvo, SSSR, 1991*



just 30 kopecks of additional gross crop output versus 42 kopecks in 1981-85.<sup>40</sup>

Much of the irrigation work has not been done according to world standards. Water pipe makes up just 30 percent of the total length of irrigation systems; only 14 percent of all irrigation works have ditches with impermeable beds. The average loss of irrigation water in the former USSR is estimated at up to 20 percent, or 30 billion cubic meters annually. These losses are particularly lamentable in the countries of Central Asia, where population growth (nearly one million infants born each year) presses upon resources.

In Central Asia, shortages have caused water use to drop from about 18,000 cubic meters per hectare of arable land, to 10,000. An estimated half of all irrigated lands in Uzbekistan are salinated because insufficient water exists to wash them properly. The Aral Sea continues to shrink and die, with no prospect of enough water to revive it. The total cost, in 1990 rubles, of a project to be built over 25 years to conserve 10 percent of current water use, would be an estimated 25 billion rubles.

Russia and the other newly independent republics are faced with the need to find a new, more effective, balance between private and local government and state responsibilities in rural land use. The Council of Ministers of the former USSR had already envisioned expanded land tax receipts for local (rayon) councils of people's deputies. Russia adopted a law on payment for land in November 1991, part of which can be used locally for land amelioration and soil conservation measures.

In 1991 Turkmenistan adopted payments for water and limits on water use. As in Russia, land amelioration enterprises are now employed under contract with state and collective farms. Farms tend to prefer to repair and improve existing irrigation and drainage systems rather than commission new ones. Concerned both with high costs and the poor quality of the ministry's tiled drainage, private farmers in Russia's northeast plan to drain their land with ditches, "as their grandfathers did."<sup>41</sup> Greater concern for soil conservation and efficient investment, are advantages cited by those who wish to expand the role of family farms.

#### ***Input Use and Farm Organization Affected by Environmental and Food Safety Concerns***

*Glasnost*' and democratization have ignited smoldering opposition to many of the planned economy's standard practices, resulting in a call for new balancing of various societal objectives: food production, soil conservation, the

environment, and food safety. The infant mortality rate of the former Soviet Union is 52nd in the world and life expectancy is 7 to 9 years less than in the developed world.<sup>42</sup> Both in fact and in the popular mind, health problems are increasingly related to environmental pollution, specifically to agrochemical production and use. A recently published soil contamination map shows that virtually no environmentally clean areas remain in Ukraine.<sup>43</sup> In the principal journal of the Agricultural Academy of Sciences, Dr. Yablokov, a respected academician, claims that many scientists believe that citizens of the former Soviet Union are "more likely to fall victim to the poor *quality*, rather than to insufficient *quantities*."<sup>44</sup>

For example, 21 percent of sausage and 42.5 percent of dairy products sold at direct marketing outlets in the former USSR were judged to be unsafe. Yablokov cites one study in Saint Petersburg where 30 percent of all foodstuffs examined contained hazardous levels of toxic chemicals. Due to the high levels of air-borne contaminants, only 10 percent of milk is judged usable for infant formula. Despite the existence of 5,000 food testing facilities in the former USSR, food safety suffers from insufficient testing of agricultural raw materials in processing plants. The testing facilities could be used to handle sanctions or rewards to stimulate better quality.

The improper use of agricultural chemicals and inadequate use of organic fertilizers are also often criticized for their negative impact upon agricultural soils, the water, and food products--as well as upon farm production. Yablokov estimates fertilizer losses from all causes, including run-off, at 4 million tons a year. Half of all the nitrogen and 20 percent of all the phosphate found in water reservoirs is from fertilizer runoff.

Some rural areas face a crisis with potable water which has been found to contain nitrates at 80 times the established norm. Russia's citizens are increasingly sensitive to degradation of the country's rivers, which provide most of their potable water. Bacteriological contamination from industrial sources, including food-related, of the Ob' river is reported to have exceeded 4,000 times the norm since 1988. This river supplies the largest Siberian city of Novosibirsk. Several tons of hydrocyanic acid were recently dumped into the West Dvina in the North West. The residents of Ufa drink from the Belaya, which is periodically poisoned by phenol.<sup>45</sup>

The role of the State in safeguarding health and the environment is compromised by the State's direct responsibility for food provision, and the persistence of food shortages. Well-known are the cases of officially



sanctioned shipments to Moscow and Leningrad of contaminated meat products and powdered milk from the areas affected by the Chernobyl nuclear accident. From 1988 to 1990, 11.1 to 12.5 billion rubles were earmarked annually for environmental protection in the former USSR -- but actual spending did not exceed 65 percent of the appropriation. Dr. Yablokov compares per capita expenditures to improve the environment of 39 rubles in the former USSR to \$320 annually in the United States.<sup>46</sup>

In the public mind, heavy tractors that compact soils, excessive chemicalization, inadequate use of organic fertilizer, and soil depletion are associated with the traditional large state and collective farms. Privatization of farming operations, as it relates to the environment and food safety is as much a topic of discussion in post-Soviet society, as is sustainable agriculture in the United States. The thesis that "the land needs a master" is an argument for the creation of individual family farms which have greater incentive to conserve land, particularly if they own and can sell it. Some of the new private farmers, knowledgeable of the new political winds, have sought to associate themselves with organic farming and grow and market directly in special shops to an increasingly worried consumer.

On the other hand, emerging private farms, particularly groups that engage in fluid milk processing and milk product manufacturing, have been charged with health hazards. This concerns principally the danger of brucellosis and also TB-contamination, where the spread of animal disease is increasing in some areas. These charges point out the need for an adequate service industry for smaller farms, and for regulations and standards that are adequate but at the same time do not hinder entry and deconcentration in the food processing and distribution sectors, which is much needed.

#### ***Agricultural Chemicals: Rationalization of Food Safety Concerns, Production, Use, and Trade***

Fertilizer production in the former Soviet Union has continued falling in 1991 from its 1988 peak. Fertilizer deliveries to farms also continued dropping from their 1987 high as the proportion of fertilizers exported increased.<sup>47</sup> Despite concerns about falling production and deliveries, the declines are partially linked to reduced demand and improved use. The importation of key pesticides and materials to make them was interrupted in 1991. Also, financing for imports, interrupted in 1991, is being linked in 1992 to the continued export of those agrochemicals which are relatively abundant.

Mineral fertilizer output in the former USSR is the largest in the world, having first surpassed U.S. production in 1972. Output was half again greater than that of the United States in the 1980's. In 1988, USSR production peaked, exceeding the combined output of the United States, France, West Germany and Great Britain. By 1987, when domestic use peaked, it was over two and a half times larger than in 1970. In 1988, the average application rate in the former USSR (118 kilograms per hectare of sown area) was 28 percent higher than the U.S. overall rate of 92 kilograms. The rate in the Ukraine (160 kilograms) was over 70 percent higher. Average use in the former USSR far exceeded application in similar climatic regions of the northern Great Plains and prairie provinces of Canada. Data on availability and use of mineral fertilizers by republics of the former USSR for various years are presented in table 8. Although mineral fertilizer use per hectare was significantly more in East, Central, and Western Europe, climate (and for Western Europe, CAP prices) make heavier doses of fertilizer more effective than in the more extensive agriculture of both the United States and the former USSR.<sup>48</sup>

Nitrogen Fertilizer Relatively Redundant. The decline by 27 percent in overall fertilizer deliveries to farms in the period 1987-1991 may have actually hurt crop production (table 9). However, the 35 percent decline in nitrogen use is in line with recognized needs for the relative composition of mineral fertilizers. Scientists, represented by A. S. Postnikov, believe that the proportions of nitrogen, phosphate and potassium in fertilizer should be on the average in the ratio of (1: 1.1 : 1), versus the proportions attained in 1985 of (1: 0.65 : 0.6).<sup>49</sup> The former Soviet Union has relatively less potassium and phosphate available than it does nitrogen. (The region has relatively few natural deposits of phosphate ores.) The imbalance in mineral fertilizer delivered to farms began to be redressed by the rapid growth of phosphate imports in 1985-87. During 1987-91, when nitrogen deliveries to farms fell by 35 percent, the decline of phosphate deliveries was only 12 percent. However, deliveries of potassium declined by 32 percent.

The decrease in fertilizer production in the former USSR is directly attributable to the diversion of oil and gas to other uses and the abandonment of older production facilities. Also, recent shortages of imported materials and parts have hurt production. However, the fertilizer application and production declines are primarily due to reduced demand. Prior to 1987, the marginal productivity of higher chemical fertilizer use in the USSR was increasingly thought to be low or, possibly, negative. The decrease in 1988 demand reflected the doubling of prices



Table 8--Availability and use of mineral fertilizers, former USSR republics 1/

Republic	Year	Production				Deliveries				Application rate			
		Total	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Total	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
-----1,000 metric tons-----										Kilograms per hectare			
Russia	1990	15,979	7,186	4,993	3,848	10,828	4,217	4,335	2,275	83	33	33	17
Ukraine	1990	4,815	3,022	1,648	143	4,353	1,836	1,457	1,059	136	57	46	33
Byelarus	1989	6,268	777	232	5,257	2,097	686	455	956	367	120	80	167
Moldova	1986	NA	NA	NA	NA	401	162	120	119	192	78	57	57
Kazakhstan	1988	1,737	446	1,279	12	1,208	466	693	49	34	13	20	1
Uzbekistan	1989	1,900	NA	NA	NA	1,327	701	403	223	290	153	88	49
Kyrgyzstan	1989	NA	NA	NA	NA	229	122	82	25	NA	NA	NA	NA
Tajikistan	1989	88	NA	NA	NA	237	134	77	26	NA	NA	NA	NA
Turkmenistan	1989	182	NA	NA	NA	316	181	98	37	NA	NA	NA	NA
Armenia	1988	39	NA	NA	NA	118	64	34	20	222	121	64	37
Azerbaijan	1987	313	231	81	1	353	171	121	61	200	97	69	34
Georgia	1987	155	NA	NA	NA	239	133	80	26	256	142	86	28
Lithuania	1987	819	NA	NA	NA	672	274	144	254	308	126	66	116
Latvia	1987	185	44	141	-	525	221	120	184	297	112	74	111
Estonia	1986	256	119	117	20	263	108	59	96	284	116	63	105

NA = Not available.

1/ Nutrient weight basis. Nitrogen--20.5 percent N, phosphates--18.7 percent P<sub>2</sub>O<sub>5</sub> and ground phosphate rock--19 percent P<sub>2</sub>O<sub>5</sub>, and potash--41.6 percent K<sub>2</sub>O.Sources: *Narodnoe khozyaistvo*, various republics, various issues

Table 9--Mineral fertilizer production and deliveries to agriculture, former USSR

Year	Total 1/	Nitrogen	Phosphate	Potash
-----1,000 metric tons 2/-----				
<b>Production</b>				
Average for				
1966-70	10,379	4,210	2,985	3,177
1971-75	17,877	7,248	4,483	6,138
1976-80	23,328	9,283	6,128	7,910
1981-85	29,294	12,573	7,521	9,192
1986	34,737	15,200	9,328	10,200
1987	36,300	15,700	9,691	10,900
1988	37,100	15,800	10,000	11,300
1989	34,300	14,400	9,700	10,200
1990	31,700	13,200	9,500	9,000
1991	30,100	12,100	9,200	8,800
<b>Deliveries</b>				
Average for				
1966-70	8,452	3,520	2,704	2,221
1971-75	13,802	6,209	3,882	3,703
1976-80	18,063	7,632	5,287	5,137
1981-85	22,156	9,790	6,540	5,817
1986	26,514	11,475	8,354	6,677
1987	27,412	11,787	8,564	7,052
1988	27,196	11,587	8,556	7,044
1989	24,482	9,918	8,175	6,381
1990	21,639	8,738	7,815	5,081
1991	20,000	7,700	7,500	4,800

1/ Also includes trace elements. 2/ Nutrient weight basis. Nitrogen--20.5 percent N, phosphates--18.7 percent P<sub>2</sub>O<sub>5</sub> and ground phosphate rock--19 percent P<sub>2</sub>O<sub>5</sub>, and potash--41.6 percent K<sub>2</sub>O.

associated with the removal of fertilizer subsidies, estimated at 2.9 billion rubles in 1987. In 1991, the price of mineral fertilizers approximately doubled again.<sup>50</sup> The reduction in usage also stems from the growing public concern about the environment and food safety (particularly nitrates) discussed above. After 1988, Soviet fertilizer prices probably came more nearly to reflect social cost.

Although less has been delivered to farms, fertilizer has been concentrated on a sown area that has decreased about 7.3 million hectares (3.5 percent) between 1987 and 1991.

**Other Factors Limit Effectiveness.** One factor that limits the effectiveness of higher mineral fertilizer usage in the former USSR is the low availability of specialized application equipment, particularly for valuable liquid fertilizers. An estimated 14 million tons of nitrogen, phosphate, and potash nutrients are washed out of sloping lands each year, three to four times desired norms. This problem is exacerbated by the inferior application methods. Lack of soil testing and measured application, as well as the erratic input rationing system, also results in applications too high in one area and too low in another.

Possibly the factor most limiting mineral fertilizer's effectiveness has been the relative lack of complementary chemical pesticides. Without them, heavy fertilizer doses



often feed weeds, or increase production only for it to be lost to insects. By one estimate, by the year 2000 agriculture should receive 440,000-480,000 tons of pesticides, versus only 179,000 tons supplied in 1991. Dr. Yablokov notes that the 1987 pesticide use in the former USSR at 0.4 kilograms per hectare was only a fraction of the levels used in many developed countries-- 1.8 kilos in the U.S., 18.5 in the Netherlands, 17.6 in Japan, 13.3 in Italy, and 4.5 in the former Federal Republic of Germany. Furthermore, the pesticides used in developed countries are generally deemed "safer" for the environment than those in the former Soviet Union.<sup>51</sup>

Trade in Agrochemicals. In the mid 1980's, Soviet public and scientific safety concerns halted production of a number of pesticides previously banned in the West. The country then became more heavily dependent upon imported pesticides. However, hard currency shortages, exacerbated by the new need to pay hard currency for imports from the former CMEA, contributed to a one-third drop in 1991 imports, compared to 1990. Imports of 94,000 tons in 1990 were already much less than the 154,000 tons in 1985.

Forced to pay hard currency in 1991, the former USSR increased imports from Western countries, from \$250 million in 1990 to \$340 million in 1991, while cutting imports from former CMEA countries. However, all pesticides imported in 1991 were reportedly bought on credit, to be repaid in 1992. Because of delays in these arrangements, one-half of plant protectants reportedly arrived too late to be of use in the spring or summer of 1991, reducing the harvest.<sup>52</sup>

Soviet exports of mineral fertilizer grew continuously, from 11.9 million tons in 1988 when domestic production peaked, to 13.5 million tons in 1990. These exports have been criticized because domestic deliveries have declined since 1987. It is hard to defend the efficiency of any pattern of Soviet trade, given distortions in the macroeconomy and prices. However, when the composition of fertilizer exports is examined, it is not clear that criticism is warranted. Almost all the gross export growth since 1987 has been in nitrogen fertilizer. Although disruption of earlier interrepublic flows has no doubt been harmful, the sale of relatively redundant nitrogen fertilizers allows the importation of chemicals that are more scarce. In 1991 for the first time data were published on the interrepublic trade of fertilizers (table 10).

The former USSR has been a major exporter of mineral fertilizer, selling to more than 70 countries. Exports by the former USSR account for approximately 20 percent of world trade in nitrogen and one-third of ammonium trade. In 1990, carbamide accounted for 84 percent, liquid

ammonia for 6 percent, and ammonia sulfate for 10 percent of nitrogen exports.<sup>53</sup>

The CIS produces only two-thirds of the pesticides needed by its agriculture. It imports approximately \$200 million of raw materials and equipment to produce pesticides and other agrochemicals. Imports of phosphate fertilizers declined 69 percent from 1987 to 1990. In early 1992 Russia set special export quotas for Rosagrokhim to export mineral fertilizers and apatite (a phosphate ore). The quotas were contingent on a provision that the untaxed currency earnings be used exclusively to import superphosphoric acid, industrial products, and equipment to produce agrochemicals.<sup>54</sup>

### *Developments in the Machinery Industry*

Statistics show that production in the former Soviet Union in the civilian machine building sector (which includes agricultural machines) fell by 9-10 percent in 1991. Output of agricultural equipment in Russia fell by approximately 15 percent.<sup>55</sup> During the first two months of 1992 production of agricultural machinery reached only 60-70 percent of capacity. The breakdown of labor discipline and traditional sources of material and intermediate components are frequently mentioned as causes, producing a chain reaction throughout the economy.

A clear judgement about the performance of the agricultural machinery industry is hard to arrive at because of the distortions in the macro economy and existing state prices. As with agrochemicals, there are large imbalances in the types and quality of agricultural machinery. Although spokesmen for both the inputs sectors and farming decry the decline in output, much machinery has long been criticized for poor quality. For example, many tractors have long been criticized as too heavy. The assortment of specialized modern implements is small. As the input manufacturing sector becomes subjected to more guidance from demand, simultaneous surpluses of some products and shortages of others are to be expected. A fall in the production of some lines is not necessarily a cause for alarm if resources are being guided by flexible prices and profit incentives into other more desirable and reliable lines.

This year's decline in machinery production follows a steady decline in major categories of farm equipment during the second half of the 1980s. For example, compared to 1986, production of grain combines had already fallen in 1990 by more than 40 percent, tractors by 15 percent, grain drills by half, mowers by 37 percent, and cultivators by 44 percent (table 11). Production inventories and delivery to agriculture of major machinery by former USSR republics in 1990 are given in table 12.



Table 10--Import and export of mineral fertilizers (including interrepublic trade), former USSR republics, 1990

Imported by	Exported from												
	Total	Russia	Ukraine	Byelarus	Uzbek.	Kazakh.	Georgia	Azerbaijan	Lithuania	Latvia	Tajikistan	Turkmen.	Estonia
	1,000 metric tons												
Total	31,834	16,092	4,726	6,028	1,778	1,590	130	205	564	182	73	174	291
Russia	12,226	10,248	120	647	192	750	12	95	39	4	--	38	80
Ukraine	5,024	1,151	2,753	1,057	-	3	1	10	18	--	--	--	30
Byelarus	2,269	408	61	1,645	--	18	--	--	45	90	--	--	--
Moldova	161	10	108	34	--	4	--	--	--	--	--	--	5
Kazakhstan	829	112	--	--	128	586	--	2	--	--	--	--	--
Uzbekistan	988	114	10	--	755	74	--	1	--	--	34	1	--
Kyrgyzstan	233	7	--	--	191	36	--	--	--	--	--	--	--
Tajikistan	277	20	--	--	189	29	--	--	--	--	23	15	--
Turkmenistan	339	54	--	--	102	29	23	--	--	--	16	114	--
Armenia	83	54	1	--	--	--	27	--	--	--	--	--	--
Azerbaijan	193	106	--	--	--	--	16	70	--	--	--	--	--
Georgia	97	20	3	1	--	5	44	23	--	--	--	--	--
Lithuania	847	106	9	297	--	--	--	1	386	1	--	--	47
Latvia	438	103	5	156	--	--	1	1	45	87	--	--	38
Estonia	236	54	10	77	--	--	--	1	4	--	--	--	90

-- = None or negligible.

Sources: Narodnoe khozyaistvo, SSSR, 1991

Table 11--Production of tractors, grain combines, and trucks, former USSR

Type	1980	1985	1986	1987	1988	1989	1990	1991
	1,000 units 1/							
Tractors 2/	555	585	595	567	559	532	495	426
Total horsepower [hp] (million horsepower)	47	53	54	52	52	49	46	NA
Average horsepower per tractor (single hp)	85	90	92	92	92	93	92	NA
Tractors with 100 hp and over	107	138	145	141	141	131	119	NA
Tractors with 30 hp and less	57	61	NA	NA	57	54	50	NA
Implements for tractors	312	346	354	346	330	302	294	NA
Grain combines	117	112	112	96	71	62	66	55
Trucks for all uses	787	823	NA	NA	862	804	774	673

NA = Not available. 1/ Except where noted. 2/ Category includes non-farm tractors.

Sources: Narodnoe khozyaistvo, SSSR, 1987, 1991; Ekonomika i zhizn' No. 6 (1992)

Table 12--Production, inventories, and deliveries of tractors, grain combines, and trucks, selected republics, former USSR, 1990

Republic	Production			Inventories			Deliveries		
	Tractors	Grain combines	Trucks	Tractors	Grain combines	Trucks	Tractors	Grain combines	Trucks
	1,000 units								
Total (former USSR)	495	66	1/ 774	2,666	683	1,392	308	66	334
Russia	214	66	NA	1,366	408	705	NA	42	NA
Ukraine	106	--	NA	426	107	296	NA	9	NA
Byelarus	101	--	NA	127	31	74	NA	2/ 2	NA
Kazakhstan	41	--	NA	220	89	120	NA	7	NA
Uzbekistan	23	--	NA	182	8	41	NA	2/ 1	NA

-- = None or negligible. NA = Not available. 1/ For all uses. 2/ 1989.

Sources: Narodnoe khozyaistvo, SSSR, 1991; republics; Goskomstat, 1991.



As with agrochemicals, the removal of subsidies has played a positive role in reducing demand, especially for inferior products. In 1987, tightened farm credit had already led farms to reject poorer quality machines. The subsequent removal of a subsidy, which in 1987 equalled 3 billion rubles, led to further "spot surpluses." These were not all bad. For instance, in 1988, unsold inventories of the Enisey combine reportedly spurred its manufacturer in Krasnoyarsk to hurry a superior substitute into production.

In early 1992, when the Russian Government freed controls on most farm input prices, the higher prices generated in the initial discovery process sharply cut demand, causing market surpluses. Faced with buyer resistance, some input firms almost immediately cut their original quoted increases, in one report by half. The Russian Government by March was carefully scrutinizing marketing margins for agricultural inputs.

For the past several years, an increasing amount of agricultural inputs had already been sold at freer prices on commodity exchanges (*birzhi*). Equipment, building materials and fuel prices increased substantially, either through official price increases or unofficially. In 1990-91, equipment costs jumped three or four-fold, while commodity prices at most doubled. Farm proponents estimated that the refusal of the government in 1991 to increase state procurement prices by more, left an estimated two-thirds (40 billion rubles) of inputs cost increase uncompensated.<sup>56</sup> This, together with the increased unreliability of delivery by the State of planned inputs, was one argument used by farms to justify their withholding planned deliveries to state procurement.

Throughout 1991 itself, demand grew for most types of farm machinery, even at their higher posted prices. Along with generally reduced supply, this contributed to growing excess demand in traditional state supply channels. In Russia the growth in demand resulted in part from the creation of 50,000 new individual farms, most with access to credit. In each of the former republics, the most important cause of increased demand was probably flight from the ruble associated with strong expectation of the sharp price increases, which finally came in January 1992.

A relatively clear example of increased excess demand despite increased supply is the situation concerning farm tractors and farm trucks and other vehicles in the Russian Federation. For all of the former Soviet Union, production of tractors (including non-farm) dropped by about 14 percent in 1991. However, according to Interfax, Russia itself managed to increase the number of tractors shipped to Russian farms to 189,700, or by 5 percent compared to 1990. Deliveries to Russian farms of trucks, cars and other transport vehicles also increased, by 2 percent. Still, only 51 percent of farms' 1991 orders (*zayavki*) for tractors were met and only 53 percent of the farm orders for trucks, etc. This was less than the shares for tractors and trucks, etc., 71-74 percent, filled with a

smaller supply in 1990.<sup>57</sup> In 1991, this increased excess demand led to a rising chaos, unreliability, and inefficiency in the allocation of farm inputs.

### *Inputs Available to Food Processing and Transportation*

During the 12th (and last Soviet) five-year plan period, a total of 330 billion rubles (18 percent more than in 1981-85) were allocated for investment in the agroindustrial complex (farming and downstream stages). Of this, about 80 percent, was spent on farming itself, but only 8 percent on food processing industries. Relative shortages facing the food processing industry are reflected in reports on the degree to which various requests were met: 65 percent of equipment, 50 percent of chemicals, and only 25 percent of refrigerators.<sup>58</sup>

Transportation was also a bottleneck during 1991. The railway system suffered from deteriorating management and loss of physical infrastructure such as inoperable locomotives. An important reason for the latter was the lack of spare parts from Czechoslovakia, due to the breakdown of trade within the former CMEA.<sup>59</sup> The decline in the exchange value of the ruble, the weakening of the traditional planning system within the former USSR, plus new republic and oblast' administrative barriers against exports, explain much of the increased difficulty in the movement of food products throughout the former USSR.

The growth of alternative channels of trade, such as direct barter and the desire to avoid border checkpoints on rail lines, apparently increased the demand for transport by trucks. Farms themselves became more involved in bartering their own goods; in some cases their own internal transport brigades have become lease operations and offered their services on a common carrier basis. The Ministry of Defense sent 30,000 trucks to Russia and 10,000 to Kazakhstan to help with the harvest. Many regions refused the assistance, possibly fearing requisition of their harvest.<sup>60</sup> The military, often unable to pay its personnel, also allowed individual units to offer trucking services for a fee.

### *Concentration in the Machinery Industry*

The agricultural machinery industry in the former USSR is very concentrated. For instance, the machines of one firm, Rostsel'mash, account for 85 percent of all grain and 100 percent of all sunflower and corn harvested.<sup>61</sup> Realization of the degree of monopoly, and the abrupt rise in prices (by 7 to 15 times) that followed price liberalization in January 1991 caused the government of Russia to control profit margins for agricultural inputs in wholesale trade. It is worth noting, however, Soviet machinery appeared to observers to have been the lowest priced of all purchased agricultural inputs when compared

to world prices. Adjustments for quality are, however, difficult to make.

The farm equipment industry has its own problems. Belinskse's mash which produced 75 percent of the former USSR's seeders and is the only Russian enterprise that manufactures seeders, potato harvesters, cultivators, and tilling equipment, was idle because of undelivered steel.<sup>62</sup> In Russia, Rostsel'mash, is "tied to the death" with the Ukraine, but unable to get axles and a number of other components from that republic.<sup>63</sup> These examples emphasize the importance of intermediary components to the agricultural machinery industry, and also the degree to which competition in the agricultural machinery industry will be restricted if interrepublic trade is not restored.

The coordination of prime and subcontractors has never been very good under central planning. In Lipetsk, Russia, a 10-year design effort to introduce an all-purpose maneuverable tractor three tons lighter than its wheeled counterpart made in Kharkov, Ukraine, came to naught due to the lack of components made at other plants.<sup>64</sup>

In their attempt to liberalize prices in the agricultural inputs industry, reforming governments in the former USSR face a dilemma. On one hand, removing price controls ends the need for rationing by the state. Then suppliers and customers are able to directly meet each others' needs independent of central rationing and planning. New agricultural input firms, or firms seeking to introduce new models, are better able to bid resources away from inferior uses. However, the fear of monopoly motivates the retention of price controls for final output

and perpetuates state rationing, which insulates industry from the discipline of demand.

The importance of competition for price liberalization and economic reform emphasizes the need for as much foreign trade and trade among the former Soviet republics as possible (table 13). Another important potential source of new competition into the civilian machinery industry lies in conversion of military plants. The St. Petersburg's Kirov works, which manufactured tanks, produced its first batch of 35 horsepower K-20 mini tractors in late 1991.<sup>65</sup> The Don-1500 grain combine reportedly sports a tank engine. Alexander Rutskoi, Russian vice-president assigned special responsibility for the agribusiness sector, is a strong public supporter of conversion. However, he also supports "corporations," which look very much like prior ministries. These would unite potential competitors--for instance, the present Vladimir and Lipetsk tractor plants.<sup>66</sup>

The new joint-stock organization, Avtosel'khoz mash-holding (ASM-holding), was formed in September 1991 at the CIS level to replace the old USSR ministry. About 1,500 factories are involved in producing farm machinery, most tightly inter-connected and largely inter-dependent. Consequently, the eleven CIS governments (founding members of ASM-holding) accepted, at least theoretically, that it is wise to continue manufacturing agricultural machinery together rather than by each republic independently.<sup>67</sup> Market guided transactions among these and other enterprises will perhaps someday replace this uncertain effort at continued administrative coordination. (Yuri Markish and Kenneth Gray)

Table 13--Import and export of tractors (including interrepublic trade), former USSR republics, 1990

Imported by	Exported from						
	Total	Russia	Ukraine	Byelarus	Uzbekistan	Kazakhstan	Moldova
1,000 units							
Total	498.9	217.0	106.2	101.7	23.3	41.0	9.8
Russia	231.2	123.0	42.5	42.6	.1	19.3	3.7
Ukraine	89.6	28.0	39.2	14.8	.1	3.3	4.2
Byelarus	19.8	9.8	4.6	5.3	-	-	.1
Moldova	6.8	3.3	1.7	1.1	-	-	.7
Kazakhstan	40.6	14.0	3.4	4.8	.6	17.5	.2
Uzbekistan	28.6	6.7	.2	5.0	16.4	.3	.1
Kyrgyzstan	2.6	.9	.3	.6	.4	.4	-
Tajikistan	3.7	.9	.1	.2	2.4	.1	-
Turkmenistan	5.0	2.4	.2	.2	2.0	.2	-
Armenia	1.5	.65	.2	.4	.05	-	.2
Azerbaijan	8.9	6.3	.6	.7	1.0	-	.3
Georgia	2.9	1.1	.9	.8	-	-	.1
Lithuania	5.1	2.7	1.2	1.1	-	-	.1
Latvia	5.1	3.3	.7	1.0	-	-	-
Estonia	3.3	1.5	.5	1.4	-	-	-

Source: Narodnoe Khozyaistvo, SSSR, 1991



## Changes Disrupt Trade of Former USSR Republics

The countries of the former USSR continue to undergo wide-reaching political-economic changes that are affecting agricultural trade. The changes relate directly to agricultural, socioeconomic, and trade policies and programs. Price increases, in response to both administrative action and quasi-market forces, are changing the relative producer and consumer prices throughout the economy. The decline in central control and administrative transfers increased the importance of having a well functioning domestic currency. It is essential to facilitate external and internal trade. However, the former USSR continued macroeconomic and trade policies that weakened the ruble through 1991.

In 1991, the imbalance in the food markets worsened. Consumer demand for food remained high as compensation packages largely offset the demand dampening effects of higher prices. Furthermore, domestic agricultural food production and inter- and intrarepublic food trade declined. The former Soviet republics appealed to competing agricultural exporters for aid and credit to cover food imports.

Russia is taking the lead in macroeconomic and trade reforms in 1992. Its reforms are forcing other republics to modify, if not truly reform, their economic and trade policies. The reforms, if carried through, should quickly cut consumer demand for animal products in the short term. They also have the potential to decrease hoarding at all levels and greatly increase the intra- and interrepublic trade flows. They have less potential for raising domestic food production in the short term, although the efficiency of production could improve.

The reforms should finally have some success in dampening consumer demand for animal products and in improving interrepublic trade as 1992 proceeds. At the same time, macroeconomic conditions and farm reorganizations may further disrupt agricultural production in 1992. Food import demand remained high entering 1992 and may be only gradually reduced in the second half of the year. The appeals for concessionary terms for food imports will likely continue even as reforms improve balance in the domestic food markets. Agricultural aid and credits release diminished hard currency earnings to finance nonagricultural imports and to service debt largely run up by nonagricultural imports during 1988-90. The level, composition, and sources of imports will reflect the availability of exporter credit programs in 1992.

Agricultural imports from former bloc countries were disrupted as the USSR forced new terms of trade beginning in 1989. A more realistic assessment of the

gains from trade with Eastern Europe may lead to increased agricultural imports from Eastern Europe in 1992. The East European countries must increase exports to pay for higher priced energy supplies as Russia raises its energy prices to world levels. The former USSR republics can offer an outlet for the agricultural surpluses that have developed in Eastern Europe since 1990. The surpluses have developed partly due to weather, but also due to the effects of reforms on reducing demand and improving productivity in Eastern Europe. Surpluses of particular commodities could ultimately develop in republics of the former USSR, if reform is successful.

The value of trade fell sharply in 1991 partly because of the decline in volume. Another important reason for the decline was the change in valuation of traded goods. In 1991, the USSR moved towards valuing commodity trade with its former allies at world prices rather than the generally inflated negotiated prices that had prevailed. Quantifying the relative importance of quantity versus price changes has been made more difficult as the former USSR's foreign trade reporting deteriorated sharply in 1991. The annual trade book covering 1990 was not released. The limited data for 1991 provide incomplete information on the new foreign currency ruble valuation and adjustments to historical data.

The price adjustments caused by the new terms of trade pertain to those commodities that were important in interbloc and barter trade, such as meat, potatoes, and sugar (table 14). However, the apparent savings from moving to world prices are not as large as suggested by comparing prices reported before and after adjustments. This is because prices for commodity exports to the bloc countries had also been inflated. For example, the USSR had historically reported paying Cuba about 7 times the world price of sugar, but also reported charging Cuba 2.5 times the world price for oil.

Partial data indicated that the USSR cut agricultural imports sharply in the first half of 1991. In part this was the result of the near record grain harvest of 1990. In volume terms, grain imports were 27 percent lower. Butter imports were down 56 percent, sunflowerseed oil imports 79 percent, and poultry meat 49 percent. Of the 10 agricultural commodity groups identified in the midyear report, only red meat and potato imports were up.

In the latter half of the year, agricultural imports increased as the decline in the 1991 grain crop became obvious. By the end of the year, the volume of 1991 grain imports was estimated to be 16 percent above 1990 (table 15). Food imports also increased to maintain food supplies in

Table 14--Comparison of the effects of changed terms of trade on former USSR trade data, 1990

Commodity	Volume 1/	Volume 2/	Value 1/	Value 2/	Value 1/	Value 2/	Unit value 1/	Unit value 2/
	1,000 metric tons		Million rubles		Million \$		\$ per ton	
Wheat	15,000	15,025	1,454	3,961	2,486	2,337	166	156
Barley	3,400	3,396	258	746	441	440	130	130
Corn	13,200	13,227	987	2,801	1,688	1,652	128	125
Wheat flour	623	246	125	89	214	52	343	213
Rice	320	320	69	76	118	45	369	141
Meat and meat products	1,129	1,129	1,193	2,337	2,040	1,379	1,807	1,221
Butter	299	299	267	746	457	440	1,527	1,472
Sugar	3,919	3,919	2,969	3,735	5,077	2,204	1,295	562
Tea	256	256	424	584	725	344	2,832	1,348
Potatoes	962	962	142	228	243	135	252	140

1/ Based on data from USSR: External Trade No. 4 (1990), except sugar ruble value data from Ekonomika i zhizn', No. 18 (1991). Assumes 1 ruble = \$1.71 2/ Based on data from Ekonomicheskaya gazeta, No. 13 (1992). Assumes 1 ruble = \$0.59.

nonagricultural areas. The disruption in domestic trade as well as production declines cut supplies to those areas. Nonagricultural imports declined at a faster pace than agricultural imports. Thus agriculture's share increased, reversing the trend since the mid-1980's of putting high priority on nonagricultural imports.

Table 15--Agricultural imports, quantities of principal items, former USSR

Commodity	1988	1989	1990
	1,000 metric tons		
Wheat	21,180	14,186	15,025
Barley	2,365	3,576	3,396
Corn	11,426	18,984	13,227
Other grain	71	223	653
Sorghum	58	105	263
Wheat flour 1/	237	250	246
Rice, milled	498	640	320
Subtotal	35,835	37,964	33,129
Meat and meat products 2/	719	696	1,129
Butter	440	247	299
Wool, scoured	114	128	69
Potatoes	NA	843	962
Vegetables, fresh	203	149	144
Vegetables, canned	447	349	268
Fruit, fresh	969	778	874
Fruit, dried	64	77	78
Sugar, raw	4,094	5,046	3,919
Sugar, refined	127	371	32
Coffee	50	113	87
Cocoa beans	138	179	104
Tea	133	215	256
Tobacco	49	38	31
Cotton lint	90	77	55
Tapioca	772	797	NA
Oilseeds	1,397	879	492
Oilseed meal 3/	3,300	3,567	2,709
Vegetable oil, edible	367	1,088	567

NA = Not available.

1/ Flour in wheat equivalent at 72 percent. 2/ Does not include live animals. 3/ ERS estimate for 1988.

The value of agricultural imports declined in 1991 despite sizable volume increases in grain and protein feed imports (table 16). The USSR slashed imports of most other commodities. Prices for grain were much lower. The wheat import unit value may have fallen over a third, other grains 10 percent or more. New terms of trade with other socialist countries led to reporting lower prices for meat, fruit, and vegetable imports. Excluding sugar, agricultural imports probably declined almost \$3 billion or almost 20 percent in 1991. With sugar included, the value decline is larger, but comparisons between 1991 and

Table 16--Agricultural import summary, former USSR

Commodity	1989 1/	1990 2/	1991 3/
	\$ Millions		
Grain and products	5,220	4,883	4,400
Livestock and products 4/	2,834	3,221	2,600
Fruits, vegetables, and nuts	1,617	1,732	1,000
Coffee, tea, cocoa, and beverages	1,607	1,642	700
Tobacco and products	838	1,003	800
Oilseeds and oilmeal	1,235	706	900
Fats and oils	724	420	250
Cotton	134	156	50
Other	405	353	600
Subtotal	14,614	14,116	11,300
Sugar 5/	5,205	5,088	2,400
Total	19,819	19,204	13,700

1/ Derived from USSR official ruble data using exchange rates of \$1.58 for 1989. 2/ Estimates derived from partial data using an exchange rate of \$1.71 for 1990. 3/ Estimates from partial data using an exchange rate of \$0.59. 4/ Includes furs, raw hides, wool, and animal fats including butter. 5/ The decline in 1991 is due totally to lower prices as the USSR and Cuba developed more realistic terms of trade.



previous years are especially misleading. The volume of raw sugar imports increased an estimated 15 percent in 1991. But the reported value dropped greatly as the prices the USSR paid Cuba, which supplied the bulk, fell more than three quarters.

### ***Debt Caused by Nonagricultural Imports***

Ruble inconvertibility allowed the former USSR to separate its domestic economy from the world economy. This separation partially shielded the domestic USSR economy from shocks in the world economy. Soviet leaders eventually came to realize the high cost of this path. The isolation protected Soviet producers from the discipline imposed by competition, fostered the maintenance of large monopolies, and allowed development of gross distortions in relative domestic prices. Productivity and efficiency suffered. The costs of inconvertibility are now increasingly apparent as the former USSR republics try to maintain trade ties with the former CMEA members and among themselves.

The USSR maintained the ruble's inconvertibility through 1991. As it has done for decades, the national government kept most foreign currency earnings, reimbursing exporters only in rubles. The national government then allocated the foreign currency to foreign trade organizations, ministries, and firms to buy imports. Furthermore, the national government allowed these groups to use foreign credit to finance imports, knowing that the organizations had little chance of generating foreign currency to repay the debts.

The USSR's handling of foreign trade has complicated the reform process. The USSR allowed its hard currency debt to reach an estimated \$45 billion entering 1991, largely run up by imports of nonagricultural commodities. Nonagricultural imports largely explained why the USSR went from an \$11.5-billion trade surplus beginning in 1988 to more than a \$5-billion trade deficit entering 1990. The aggressive import programs in 1988 and 1989 included an additional \$16 billion for nonagricultural goods, and only an additional \$3.5 billion for farm products. The USSR continued large imports of nonagricultural goods in 1990, with machinery and transport equipment from all sources up more than \$10 billion over 1989 (no net increase from the United States). Agricultural imports increased little, if at all.

In 1990, agriculture's share of imports was about 15 percent, about half its peak in 1981. Grain's share of total imports was less than 5 percent. This is less than half its record share in 1981 and 50 percent below the 1981-85 average. Soviet hard currency grain imports in 1990 accounted for about 11 percent of total hard currency

imports, down from an average of 21 percent in 1981-85. Agriculture's share of total hard currency imports in 1990 was perhaps 20-25 percent, well below the 35 percent average in 1981-85.

Falling exports explain little of the former USSR's debt entering 1991. Exports did decline in 1990, but only because the USSR deliberately continued its cutback to the socialist countries. While Soviet soft currency exports declined in 1990, hard (convertible) currency exports increased to a record \$35.5 billion. The USSR increased oil exports to the West and further benefited from the high oil prices in the second half of 1990. By the beginning of 1991, the USSR cut its trade deficit with the OECD countries by \$2 billion--over 30 percent from the beginning of 1990.

The former USSR cut its trade deficit with OECD countries despite increasing imports from them. As with total food imports, the former USSR put higher priority for hard currency imports on nonfood goods. Hard currency imports rose by \$2 billion in 1990 to a record \$37 billion, with little or no net increase in hard-currency agricultural imports from the West.

Private credit had financed much of the increased trade deficit. Private credit dried up as the debt increased, the USSR badly mishandled payments in late 1989 and into 1990, and concern grew about the progress of political and economic reforms. As private credit dried up, USSR leaders campaigned for concessionary terms in the competitive agricultural market. They made this pitch in the second half of 1990, when oil prices reached near record levels, the USSR likely faced the best grain/oil terms of trade, and it harvested a near-record grain crop.

### ***Trade Surplus in 1991***

The republics remain interested in credit arrangements, despite some improvement in the former USSR's balance of trade in 1991. According to reports from the USSR, the debt situation deteriorated substantially during 1991 with hard currency debt estimates of \$70-80 billion. Such a large increase does not seem in line with Western analyses of former USSR debt or with the trade data reported by the former USSR in 1991. For example, in *PlanEcon Review and Outlook: Analysis and Forecasts to 1995* (November 1991), the former USSR's net hard currency debt was forecast to decrease from \$50 billion beginning 1991 to \$45 billion beginning 1992. Later detailed PlanEcon estimates showed a smaller net hard currency debt and a \$6 billion trade surplus with the market economies for 1991.<sup>68</sup> An even later report showed the same trade surplus with the developed

economies.<sup>69</sup> However, this later report raised the net hard currency debt series and had it fall only \$1.4 billion during 1991. The report estimated the former USSR's net hard currency debt at \$51 billion beginning 1992.

A decline, rather than an increase, in debt fits better with the 2 billion foreign currency ruble (FCR) trade surplus that the USSR reported for 1991 (table 17). The surplus contrasts sharply with the 18 billion FCR trade deficit accumulated during 1990. The former USSR accumulated the 1991 trade surplus by slashing imports from the West and from the former bloc members. The former USSR reported that total exports were down a third in 1991 from 1990. Total imports were down 42 percent. The decline in trade with former bloc trading partners was even greater because of the new terms of trade and less centralized trading arrangements. The former USSR cut imports from OECD countries by 31 percent, while exports to them fell only 16 percent. As a result, the former USSR had moved from a 12 billion FCR trade deficit at the end of 1990 with OECD countries to balanced trade entering 1992.

A World Bank report reiterates the PlanEcon observation that the lack of information from the former USSR makes understanding the trade and debt situation difficult.<sup>70</sup>

The Bank says that its estimates of debt-service-to export-ratios of 25-30 percent and debt-to-export ratios of 140-170 percent indicate that the former USSR has moderate indebtedness. The debt appears less onerous when compared to the total size of the republics' economies and their mineral wealth.

Table 17--Foreign trade, former USSR

Direction	1990	1991
Billion rubles 1/		
Exports to:		
Socialist countries 2/	49.5	24.4
Developed countries	54.9	46.0
Other countries	15.5	11.0
World	119.8	81.4
Imports from:		
Socialist countries 2/	58.1	24.9
Developed countries	66.8	46.1
Other countries	12.8	8.2
World	137.6	79.2

1/ In recent years, the USSR official exchange rate for the ruble had been in the \$1.60-1.70 range. In 1991, the Soviets began to report using a new ruble valuation. This series is not comparable to series published in previous USSR Agriculture and Trade reports. The discontinuity is greatest for trade with the socialist countries where the change to world prices from administered prices has resulted in large changes in the data series. The exchange rate for 1991 was about \$0.59 to a commercial rate ruble.

2/ Includes Eastern Europe, Cuba, Mongolia, North Korea, PRC, and Vietnam.

Source: *Ekonomicheskaya gazeta*, No. 13 (1992).

The former USSR was the world's largest country, more than twice the size of either the United States or China. The population is only about 15 percent bigger than the United States. The former USSR is one of the world's largest gold producers and the largest natural gas producer with an output about equal to OECD's. Its crude oil production remains near U.S. levels, despite declines in 1990 and 1991. However, the World Bank cautions that the unstable political and economic conditions make tapping those resources to maintain export revenue to service and retire the debt difficult.

### Who Controls Resources?

Repayment of long-term loans by USSR successor states depends upon whether future reforms provide frameworks for coherent economic systems. Russia has vast natural resources to sustain the economy as it reforms, but the process will be extremely complicated for this large, diverse society. The other republics have fewer reserves to sustain them during reform. Leaders and economists in the former USSR republics, Central European countries, and West disagree whether gradual or rapid reform is best.

The ability of the economy to function efficiently and to finance repayment of debt affects payment performance. Payment performance also depends on who is responsible for payment and whether they have access to resources. The issue of control spans not only the national versus republic authority, but also control by local authorities, firms, and individuals.

The G7, in a November 21, 1991, communique, agreed to partial debt rescheduling for the republics, based on the agreement to allocate the debt among the republics and a commitment to macroeconomic reforms that affect trade performance. On December 4, 1991, six former republics (Russia, Ukraine, Byelarus, Armenia, Kazakhstan, and Tajikistan) signed an agreement apportioning Soviet debt and assets. Russia, despite running large foreign trade export surpluses in at least the last 3 years, agreed to repay 61 percent of foreign debt. Byelarus and Kazakhstan each agreed to assume 4 percent. The Ukraine accepted responsibility for 16 percent. Later, Ukrainian leaders complained about Russia's proposals for retiring that debt. A March agreement addressed the Ukraine's concerns, making the republic cochair of the interstate council for monitoring and servicing debt.

The USSR national government controlled the movement and allocation of most foreign exchange earnings through late 1991. Entering 1991, it took an aggressive stance on reducing debt. In November 1990, the government began requiring exporters to sell 40 percent of their foreign



currency earnings to the USSR Bank for Foreign Economic Activity. The funds were for debt retirement. Firms had to sell additional foreign currency earnings to another fund that finances imports, including food imports.

Control of foreign currency remains in contention and will continue to be while the former USSR undergoes reform. Russia produces about 90 percent of the former USSR's oil, 75 percent of the natural gas, and about two-thirds of gold mined. Its natural resources, including oil, gas, and gold, and its production of weapons have supported the other republics and dependencies abroad. Russia's governments, firms, and citizens potentially stand to benefit most from the reallocation of foreign currency earnings from national control.

In 1991, Russia's trade share remained near recent levels despite the declines in trade (table 18). Russia's exports for calendar 1991 totaled 64.2 billion hard currency rubles, a 29 percent drop from 1990.<sup>71</sup> Oil exports totaled 54.5 million tons, barely half the 1990 level. Gas exports, at 89.6 billion cubic meters, were down 7 percent. However, imports fell even more--a 46 percent drop to 44.7 billion hard currency rubles. Thus, Russia ran a 19.5 billion hard-currency-ruble trade surplus in 1991 compared to the 7.6 billion hard-currency-ruble trade surplus in 1990. The increase in Russia's trade surplus explained more than half the improvement of the former USSR's overall trade balance in 1991. Russia was counting on further surpluses entering 1992, reporting that as of late March they anticipated an 8 billion ruble surplus for the first quarter.<sup>72</sup>

Table 18--Former USSR republics foreign trade, 1991 as percent of 1990

Republic	Exports	Imports
	Percent	
Russia	70.6	54.4
Ukraine	53.7	61.2
Byelarus	58.2	53.1
Moldova	58.7	49.4
Kazakhstan	61.6	60.6
Uzbekistan	65.5	57.9
Kyrgyzstan	61.3	57.4
Tajikistan	59.6	51.6
Turkmenistan	61.5	63.2
Armenia	59.4	80.6
Azerbaijan	62.1	56.4

Source: *Ekonomika i zhizn'*, No. 6 (1992).

The successor states are continuing many trade policies and programs of the former USSR. Although republics are allowing trading by most entities, the governments still maintain quotas and require export and import licenses for many commodities. Import and export tariffs became more important instruments for controlling trade as the USSR began decentralizing trade in 1986. In early 1991, the USSR had high import tariffs on many goods, including some food items.<sup>73</sup> A November 1991 resolution exempted meat, powdered milk, butter, and some tropical products from import taxes and duties. The resolution also provided for export taxes (which are separate from the hard currency sales to the government).

Russia has maintained export taxes with the end of the Union. A special resolution on January 10, 1992, introduced export tariffs set in European currency units (ECUs). The tariff can be paid in rubles at the prevailing market rate. For crude oil, the tariff was 26 ECUs per ton, for diesel fuel 57 ECUs per ton.

The Commonwealth of Independent States (except the Ukraine) and Georgia agreed in late 1991 to continue centralized imports of food and agricultural raw materials and reconfirmed the agreement in a protocol in March 1992. The quasi-governmental trading organizations, Eksporthleb, Prodintorg, and Soyuzplodoimport, were identified as intermediaries for paying for food imports and shipping charges. Despite these agreements, the republics are apparently negotiating separately for credits. Since the ruble remains inconvertible, republics must set up mechanisms for securing hard currency from exporters to finance centralized imports and service the debt.

The republics continue to influence exporter and importer behavior through control of export revenues. The trade reforms begun in 1986 allowed enterprises to keep a share of foreign currency earnings. The shares were as high as 80-90 percent for favored machinery enterprises, but were low for oil and gas. The government narrowed the retention rate differentials in 1990. The rates listed in one summary ranged from 25 to 70 percent.<sup>74</sup> The government, however, effectively cut these rates in half across the board in November 1990 through 1991 as it sought more resources to pay its hard currency debt and finance continued centralized imports.<sup>75</sup> The government required that exporting firms sell half to as much as 85 percent of their foreign currency earnings to various government agencies at a commercial rate of about 1.75 rubles per U.S. dollar in 1991.

With the dissolution of the USSR, individual republics continue in 1992 to require exporters to sell a share of their hard currency earnings to their governments. The general rule in Russia is that exporters must sell 40

percent of hard currency earnings for many goods and services.<sup>76</sup> The goods include mineral, chemical, and forest products and precious and semiprecious metal and stones. In addition, they and exporters of all commodities must sell 10 percent of the export earnings to the Russian Central Bank to form a hard currency stabilization fund. Special arrangements exist for certain local areas.<sup>77</sup>

Moldova requires all exporting enterprises to sell 50 percent of their hard currency earnings (60 percent for brokers) to the Bank of Moldova. One report said Byelarus requires 50 percent sales; a later report said enterprises had to sell 100 percent. Turkmenistan is requiring gas exporters to sell 80 percent of their hard currency earnings to the national bank, but equipment exporters 55 percent. The Ukraine also differentiates rates for foreign currency sales to the republic by commodity groups (70 percent on gas and precious metals, 35 percent on machinery). An additional 5 percent of earnings must be sold to local governments.

The exchange rates for the forced and voluntary foreign currency sales have changed greatly over the last several years. Through 1990, the USSR used perhaps 2,000-4,000 exchange rates (differentiated by goods and ministries) when settling with domestic enterprises. The differentiated rates complicated efforts to measure comparative advantage across industries and enterprises and distorted trade.

In November 1990, the government established a single, more realistic commercial exchange rate for each convertible currency.<sup>78</sup> The government maintained the commercial rate between about 1.65 and 1.83 rubles per dollar during 1991 and the official rate (used only for limited accounting purposes) between about 0.55 and 0.60 rubles per dollar. However, the tourist and the evolving market exchange rates changed substantially.<sup>79</sup>

Currency auctions, begun in November 1989, were the first excursion into establishing a legal market for the ruble. The value of the ruble fell as exchange rates changed from about 8 rubles per dollar in late 1989 to 35 rubles per dollar in spring of 1991. These rates, while in line with the black-market rates, likely undervalued the ruble because of the small volumes auctioned. Most foreign currency remained preempted by the required government sales. Exporters held on to much of the rest to finance their own imports. The same paucity kept rates high even when on April 1, 1991, law extended banks the right to trade in foreign currencies. Bank rates stayed in the 30-40 ruble range through the summer. Economists often used higher rates (3-6 rubles per dollar) in their analyses of the effects of reform on the Soviet economy and trade. With the disintegration of the USSR in late

1991 and increasing economic disruption throughout the area, the ruble value fell to 170 rubles per dollar and lower. By March 1992, the ruble had recovered some, with the cash rate as low as 70 rubles per dollar.

On January 2, 1992, Russia set the market exchange rate for exporters' required sales of 10 percent of their hard currency earnings to the Russian Central Bank's currency stabilization fund at 110 rubles per dollar. For the required sales of 40 percent of hard currency earnings by some exporters to Russia's currency reserve, the new special commercial rate was 55 rubles per dollar. Russian exporters were free to exchange the remainder of their hard currency exports earnings at the generally higher rates offered by other banks and exchange arrangements. In February 1992, the Russian Government also established a special coefficient of 5.4 rubles per dollar for centralized import operations and nontrade operations of the Foreign Currency Fund.<sup>80</sup> The rate was criticized for its potential for distorting import decisions. A January decree said the Kazakhstan National Bank will set the exchange rate in Kazakhstan.

The devaluation of the ruble, begun in late 1990 and, accelerated through 1991, should make exporting and tourism more attractive. Importing should be less attractive. In fact, other factors overshadowed the devaluation of the ruble in explaining import declines in 1991. The government, the predominant importer, was confiscating hard currency from exporters at the commercial rate of less than 2 rubles per dollar. For enterprises that used their exports earnings to finance imports, the devaluation worked in both directions. The effects of making imports more expensive would be greater for enterprises that must purchase hard currency to finance imports. Such firms likely account for very few imports. More important reasons for the decline in imports were the decline in exports (primarily oil) and the disruption in trade with former CMEA countries. Political decisions, disagreements on new terms of trade, and increased decentralization of trading decisions disrupted former bloc trade.

### *Interrepublic Trade*

As one analyst observed, trade among the republics reflected the dominance of political over economic logic.<sup>81</sup> The decreased authority to administratively allocate goods slowed trade among the former USSR republics through 1991. Trade and economic management is less centralized. However, commodity markets to replace administrative reallocation are nascent. Furthermore, administrative interference in pricing and monopolistic interests are hampering trade. Most



disruptive perhaps has been the increasing inability of the ruble to function as a means of exchange.

New trading organizations, negotiations on new terms of trade, problems in domestic convertibility of the ruble, and different approaches to reform will continue to hinder interrepublic trade in 1992. These same types of problems have disrupted trade between the former USSR and the former CMEA countries since 1989 and beset trade between the CIS and Baltics.

As the republics position for better terms of trade and exercise their independence, they are withholding goods in perverse ways. Thus, the Ukraine underuses its sugar refining capacity as it refuses to allow exports to traditional markets. However, lower trade in the current circumstance is not necessarily bad. Lower trade for many commodities may be economically efficient for the given mix and quality of goods produced and demanded in the various republics. Presumably, trade based on economic comparative advantage likely will not be the same as trade decreed by central planning. A February agreement stipulated that interrepublic agreements must guarantee 1992 interrepublic deliveries of raw materials, semi-finished goods, and component parts at 70 percent of 1990's volume.

The republics and local jurisdictions increasingly established restrictions on exports beginning in late 1990 and through 1991. The restrictions applied, not only to exports outside the USSR, but also to shipments to other localities and republics. The constraints included bans on direct exports, export licenses and quotas, and restrictions on purchases by nonresidents. Massive profits could be garnered through arbitrage because of large price differences among and within republics. The distortions that resulted from the price differences partly explain the export restrictions. Some price differences resulted because of administrative price structures that often paid higher prices to producers in high cost areas. Other price differences result as republics and local areas try different approaches to reform and price liberalization.

Finding a mechanism to maintain interregional trade is proving difficult. A protocol signed February 8, 1992, calls for unimpeded movement of freight through the Commonwealth and Georgia, free of customs examinations, and regulated according to international rules of transportation. A customs union agreement was signed in March by 9 of the republics. The agreements occurred as Turkmenistan threatened to impose sanctions on the Ukraine for Odessa dockers' refusal to ship Turkmenistan cotton to Turkey.

At a February 8 meeting of the Commonwealth Council, leaders discussed the option of valuing traded commodities at world prices and transferring this value to rubles by a coefficient of 20-30 rubles per dollar. This solution assumes that the ruble remains a common currency among the republics. In fact, most republics are planning their own currencies, which a later February agreement acknowledged.<sup>82</sup> After the clause agreeing to use the ruble for settlement, the agreement continued "Where individual states of the Commonwealth introduce their own national currency, the procedure for payments will be determined by separate agreements." Not all republics are adopting world prices. For example, the December 1991 Kazakhstan-Turkmenistan agreement calls for trade at fixed and agreed prices.

The February agreement stipulated that the republics would develop a list of goods on which quotas, licenses, and other forms of non-tariff restriction could apply with intergovernmental agreements. Although it stipulated that free market prices will be used, it allows for price ceilings for "individual, very important types of products." Oil likely will be one of the commodities on both exception lists. (Kazakhstan's January 1992 hard currency decree listed grain as a commodity only the government could export.) Oil trading provides an example of the problems associated with continued administrative interference in pricing and an inconvertible currency. A republic could export oil for hard currency that the republic had received from Russia at preferential ruble prices. The February agreement recognized the problem, prohibited such reexports, and set sanctions that included payment in hard currency. Interrepublic agreements like that signed by Kazakhstan and Turkmenistan in December 1991 have laws against reexport.

Introduction of new currencies will entail domestic costs for each republic for the exchange process. Furthermore, multiple currencies will raise transactions cost. However, a common currency has its drawbacks for reform. A common currency will transmit the effects of differently paced reform between two republics. A positive outcome would be that progressive areas could force the least progressive to reform more rapidly. The opposite outcome is possible too, as the conservatives lobby for slower change. Republics' choices about methods used to establish exchange rates (fixed, floating, or some hybrid) and the resulting rates will have important implications for trade and the pace of reform.

Russia stands to gain the most from the new terms of trade. According to estimates by Soviet sources, Russia would have run a 32-billion-ruble trade surplus in 1989,

versus the 35-billion-ruble trade deficit resulting with current Soviet prices (tables 19 and 20). Thus, trading at world prices would have improved Russia's 1989 trade balance by 67 billion rubles. For 1988, the estimated difference was almost as large, at 64 billion rubles. Adjustments are about evenly split between exports and imports. The adjustments reflect the relatively low

domestic prices for raw materials, including energy, and the overvaluation of manufactured goods.

The data also show that Russia accounted for about 45 percent of all exports (foreign and interrepublic) by the former USSR republics and 48 percent of all imports in domestic prices. These shares changed to 55 percent and

Table 19--Trade of the former USSR republics, valued at actual trade prices, 1989

Republic	Imports			Exports			Net Imports		
	Total	Interrepublic	Foreign	Total	Interrepublic	Foreign	Total	Interrepublic	Foreign
Billion rubles									
Russia	144.27	70.67	73.60	109.61	75.07	34.54	34.66	-4.40	39.06
Ukraine	54.54	39.97	14.57	48.06	40.46	7.60	6.48	-0.49	6.97
Byelarus	19.35	14.84	4.51	20.30	18.31	1.99	-0.95	-3.47	2.52
Moldova	6.61	5.19	1.42	5.46	5.19	0.27	1.15	0.00	1.15
Kazakhstan	17.57	14.57	3.00	9.09	8.20	0.89	8.48	6.37	2.11
Uzbekistan	14.16	12.05	2.11	10.17	8.54	1.63	3.99	3.51	0.48
Kyrgyzstan	4.29	3.36	0.93	2.60	2.55	0.05	1.69	0.81	0.88
Tajikistan	3.93	3.25	0.68	2.53	2.18	0.35	1.40	1.07	0.33
Turkmenistan	3.33	2.74	0.59	2.66	2.42	0.24	0.67	0.32	0.35
Armenia	4.90	3.84	1.06	3.69	3.60	0.09	1.21	0.24	0.97
Azerbaijan	5.19	3.79	1.40	7.12	6.67	0.45	-1.93	-2.88	0.95
Georgia	6.47	4.89	1.58	6.09	5.72	0.37	0.38	-0.83	1.21
Lithuania	7.35	5.79	1.56	6.33	5.85	0.48	1.02	-0.06	1.08
Latvia	6.03	4.52	1.51	5.41	5.04	0.37	0.62	-0.52	1.14
Estonia	3.82	3.23	0.59	3.12	2.90	0.22	0.70	0.33	0.37
Total	301.81	192.70	109.11	242.24	192.70	49.54	59.57	0.00	59.57

Source: *Narodnoe khozyaistvo, SSSR*, 1991, p. 636.

Table 20--Trade of the former USSR (foreign and interrepublic), valued at world prices, 1989

Republic	Imports	Exports	Net imports
	Billion rubles		
Russia	108.91	141.02	-32.11
Ukraine	52.79	47.73	5.06
Byelarus	20.24	18.75	1.49
Moldova	5.91	2.79	3.12
Kazakhstan	16.56	9.38	7.18
Uzbekistan	12.33	7.79	4.54
Kyrgyzstan	3.68	2.18	1.50
Tajikistan	3.38	1.81	1.57
Turkmenistan	2.86	2.60	0.26
Armenia	3.71	2.36	1.35
Azerbaijan	4.45	5.00	-0.55
Georgia	5.49	3.40	2.09
Lithuania	8.16	4.84	3.32
Latvia	5.68	4.42	1.26
Estonia	3.49	2.09	1.40
Total	257.64	256.16	1.48

Source: *Narodnoe khozyaistvo, SSSR*, 1991, p. 642.

42 percent when trade was valued at world prices.

Russia's share of foreign exports alone, valued at domestic prices, was 70 percent. Using world prices would raise this share. The share likely would be higher still for hard currency exports.

Although Russia dominates the former USSR trade, Russia is least dependent relatively on imports from other republics. This follows from its large size. Using 1989 information, interrepublic trade was equivalent to about 7-8 percent of the overall value of Russia's production and consumption. Again reflecting the importance of size, the Ukraine and Kazakhstan were next least tied to interrepublic trade. The Baltics and Moldova were the most dependent on interrepublic trade. The share of foreign imports as a percent of domestic consumption ranged from 8 percent for Russia to 3 percent for Kazakhstan. The share of foreign exports as a percent of domestic production ranged from 3 percent for Russian to 0.3 percent for Kyrgyzstan.



The data, available only on a domestic price basis, show Russia's import dependence on food (table 21). Russia accounted for 64 percent of food imports (foreign and interrepublic) and only 17 percent of food exports. The Ukraine's food surplus primarily reflects sugar and vegetable oil exports rather than net exports of grain and animal products. The surpluses for Byelarus, Moldova, and the Baltics largely resulted from exports of higher valued animal products, produced from lower-priced animal feed imports.

### *Baltics and New Terms of Trade*

The Baltic countries were the most developed and prosperous of those in the former USSR. To some extent, the prosperity was due to subsidies they received in part through distorted, administratively set prices.<sup>83</sup> The Baltics, like the former CMEA countries and republics other than Russia, must adjust to deteriorating terms of trade.

The largest shock for the Baltics will be adjusting to the end of subsidized energy imports from Russia. The adjustment will be difficult because of their high dependence on interrepublic trade. Furthermore, their manufactured goods, like those of other centrally planned areas, may not reflect Western standards or cost structures. If they lower prices, they may face complaints

about dumping as competitors disagree about quality differentials. These quality differences will likely have less importance in areas of the former USSR that do not have access to hard currency earnings. The Baltics proximity to the populous European portions of the former USSR also will encourage ties there relative to more distant markets.

The Baltics are pursuing interrepublic trade protocols with individual republics. The agreements generally specify trade levels for particular goods and terms of clearance and assume continued direct government intervention in trade and thus production decisions. World prices are to be used. The 1992 Lithuanian-Russian agreement covers 200 products, including exports of 400,000 tons of dairy products to Russia. Most agreements call for trade outside the agreement structure, but do not specify settlement terms for such trade. Agreements generally stipulate using world prices. All partners have generally reverted to settlements in rubles using clearing accounts (as long as both use the ruble). Demands for settlement in hard currency faded as all but Russia generally lacked access to hard currency. A December Estonian-Russian agreement for the first quarter of 1992 specified accounting in rubles and payments based on clearing accounts. By early January, the Estonians complained that energy shipments were lagging. The Latvian-Russian agreement called for payments in rubles at the exchange rates of 35 rubles per dollar.

Table 21--Foodstuffs trade for the former USSR (including foreign trade), 1989

Republic	Imports	Exports	Net Imports	Imports	Exports
	Billion rubles			Percent of total	
Russia	17.277	3.124	14.153	64.4	16.8
Ukraine	1.546	6.584	-5.038	5.8	35.4
Byelarus	0.802	1.494	-0.692	3.0	8.0
Moldova	0.176	1.123	-0.947	0.7	6.0
Kazakhstan	1.098	0.544	0.554	4.1	2.9
Uzbekistan	1.618	0.720	0.898	6.0	3.9
Kyrgyzstan	0.264	0.377	-0.113	1.0	2.0
Tajikistan	0.454	0.149	0.305	1.7	0.8
Turkmenistan	0.477	0.305	0.172	1.8	1.6
Armenia	0.713	0.138	0.575	2.7	0.7
Azerbaijan	0.860	0.464	0.396	3.2	2.5
Georgia	0.824	1.415	-0.591	3.1	7.6
Lithuania	0.308	0.879	-0.571	1.1	4.7
Latvia	0.183	0.672	-0.489	0.7	3.6
Estonia	0.242	0.589	-0.348	0.9	3.2
Total	26.841	18.575	8.265	100.0	100.0

Source: *Narodnoe khozyaistvo, SSSR, 1991, p. 637.*

The Baltics' agricultural sector is highly dependent on interrepublic trade. Baltic feedstuff imports, much of which Russia financed from the West, largely supported the Baltic's animal products exports. Beginning in 1990, feedstuff imports by the Baltics began to decline. For 1992, Lithuania apparently negotiated for 70 percent of the promised 1991 grain shipments. In early 1992, Lithuania complained that Russia failed to deliver 600,000 tons of grain in 1991. An agreement with Russia signed in February 1992 reportedly will allow Latvia to keep 6 percent of the grain shipped through its port as payment for transport. To the extent that Russia finds alternative animal product suppliers in the West or consumption falls due to higher prices, the Baltic livestock sectors will face major adjustments. Although their agricultural efficiency and productivity are good by former Soviet standards, they are far below those in the West.

### *Import Demand Should Fall in Mid-term*

Several factors ultimately will dampen overall import demand in the former USSR, possibly by the end of 1993. The republics that made up the USSR cannot allow their

political-economies to continue freefall between command-driven and market-driven systems. The decline in the former USSR GNP will continue in 1992. The declines eventually must affect living standards, although money emission unsupported by production raised nominal incomes in 1991.

Reversion to an administrative system would decrease foreign credit and see the republics' economies grow more inefficient. Export revenues would continue to fall and financing agricultural imports would become more difficult. Unless crop production is given higher priority than in the past, production will not be sufficient to increase animal product output significantly.

Substantial movement toward a market economy will entail freeing prices, demonopolization, and hard budget constraints. Such changes would decrease demand for animal products, cut waste at all levels, and raise agricultural efficiency and production. Crop and livestock productivity in the former USSR is far below that in the United States.

To illustrate the distortions caused by the USSR's use of administrative prices divorced from world prices, an analyst compared actual 1986 U.S. agriculture trade with what would have occurred if Soviet, rather than U.S., relative prices prevailed in the United States. The exercise showed that the United States would have moved from its position as a \$13 billion agricultural exporter to an \$11 billion agricultural importer if the distorted Soviet price relationships had prevailed in the United States.<sup>84</sup> Despite some progress in freeing prices, price controls remain on many commodities. The CIS republics signed a protocol in March 1992 that still provided for regulated prices of energy and some foods.<sup>85</sup>

Some East European countries provide another example of how real reforms can cut agricultural imports. The Polish, Hungarian, and Czech experiences in 1990-91 show that reforms, such as freeing prices and restricting money supplies, cut demand for animal products and other foods by 20 percent or more.

True economic reform means that farmers in the republics respond to market prices and produce according to their comparative advantages. Given the former USSR's agroclimatic conditions (and assuming trade undistorted by protectionist policies pervasive in the West), the former USSR would be expected to increase protein feed imports. The former USSR would be more likely to specialize in wheat and dairy production. With thorough reforms, the former USSR in aggregate has the potential to develop into an important exporter of some commodities, including wheat. Cotton traditionally accounted for about half the

USSR's \$2-3 billion of agricultural exports. The share would be higher if the export figures excluded the grain the USSR purchased abroad and directly shipped to dependencies such as Cuba without crossing Soviet borders.

### *New Terms of Trade with Eastern Europe*

The former CMEA, formed in January 1949, included Bulgaria, Czechoslovakia, Hungary, Poland, Romania, Cuba, Vietnam, and Mongolia. East Germany was a member until German reunification. The USSR viewed the positive trade balance that it ran with these countries during 1980-87 as a liability. The USSR provided oil and other natural resources to them and received inferior capital and consumer goods in return.

The Soviets began to cut exports to the former CMEA, in ruble terms, as early as 1988. With the political changes in 1989, the decline accelerated. The 8-billion ruble decline in exports to the socialist countries in 1990 paralleled the 8-billion ruble decline in total exports.

The USSR proposed in 1990 that trade among the former CMEA countries use current world prices with payments in convertible currencies by January 1991. This arrangement was to replace trade based on prices related to a 5-year moving average of world prices, with accounting done using the transferable ruble.

The transferable ruble, developed in 1963, was not convertible in a financial or commodity sense. Its abandonment and several other factors discouraged intrabloc trade in 1991. The USSR and many Eastern European countries allowed nonstate trading in the late 1980's. However, in 1991 the USSR banned barter trade except by state organizations. The government wanted all decentralized trade to occur in foreign currencies that the government would force exporters to exchange for rubles.

Barter, the lack of a soft currency clearing mechanism, and paucity of hard currency for nongovernment traders, discouraged trade. In addition, new import and export taxes and falling domestic production cut trade. As a result, the former USSR narrowed its trade deficit with former bloc countries.<sup>86</sup> The value of imports from the former CMEA countries declined 61 percent and exports to them declined 56 percent in 1991. The drops reflected declines in the volume of trade and in trade prices.

The fragmentary data suggest that agricultural exports from Eastern Europe to the former USSR plummeted in 1991 as did overall trade between the regions. For example, Hungary's frozen meat and poultry exports to



the USSR declined from 83,000 tons in the first half of 1990 to 10,000 tons in the first half of 1991.

The volume of trade between the former USSR republics and the former CMEA countries should revive as the former bloc partners find few other markets for their goods. They will be forced to ship higher quantities of goods to pay for no longer subsidized energy from the former USSR.<sup>87</sup> The republics and East European countries are returning to barter and other trade clearing mechanisms to get around the continuing problems presented by the slow progress in improving convertibility of their currencies.

Another factor may encourage renewed and increased Eastern Europe farm exports to the former USSR republics in 1992. Some East European countries have developed agricultural surpluses because of economic reforms. Freeing prices and other reforms cut consumption of some farm products greatly in Poland, Hungary, and Czechoslovakia in 1991. Farmers in these areas face the problem of excess production and are looking to the former USSR republics for export markets.

Recent agreements provide evidence of renewed and expanded agricultural imports from Eastern Europe. A 1992 barter protocol specified \$1.5 billion of Polish food-product exports to Russia, including meat, grain, potatoes, sugar, butter, and vegetable oil (and possibly apples and flour). Agricultural exports from Poland to the USSR probably ran less than \$100 million each year for 1988-90 (table 22). These and other goods in the agreement will not be subject to duties by either side. (However, in late January as Polish food shipments proceeded on schedule, Russian energy exports were reportedly lagging.) Yugoslavia agreed to sell Kazakhstan 100,000 tons of corn in 1991 and 400,000 tons in 1992. A later Russian-Serbian agreement calls for shipments of 500,000 tons of grain, 100,000 tons of beef and pork, and sugar and dried fruits to Russia. The former USSR reported no sizeable imports of these goods from Yugoslavia. Several reports have put Hungarian 1991/92 grain exports to the former USSR at 3 million tons, which would be more than twice annual levels during the 1980's.

Western, former Soviet, and some East European experts expect the former USSR, especially Russia, to gain from the new terms of trade. They expect the former CMEA countries will discount their export prices more than the former USSR will drop energy and other resource export prices. Ultimately, the more realistic alignment in terms of trade among the former CMEA countries will lead to more economically efficient trade.

Table 22--USSR imports from former CMEA countries

Country/Trade	1988	1989	1990
Billion rubles			
Total imports	65.040	72.137	70.728
Total imports from CMEA	39.830	40.588	NA
Bulgaria	6.873	7.307	6.170
Czechoslovakia	6.817	6.610	6.244
GDR	7.024	7.175	NA
Hungary	4.943	4.813	4.436
Poland	7.109	7.410	7.945
Romania	2.431	2.489	1.784
Cuba	3.837	3.867	3.686
Mongolia	0.406	0.397	0.434
Vietnam	0.389	0.520	0.704
Total agricultural imports	10.536	12.544	11.230
Agricultural imports from CMEA 1/	4.352	4.106	NA
Bulgaria	0.535	0.489	0.289
Czechoslovakia	.024	.024	.001
GDR	NA	NA	NA
Hungary	0.739	0.653	0.600
Poland	0.090	0.049	0.067
Romania	0.136	0.078	.003
Cuba	2.676	2.656	3.356
Mongolia	0.085	0.080	0.030
Vietnam	0.066	0.078	0.065
Total agricultural machinery and equipment imports	1.177	1.024	0.856
Agricultural machinery and equipment imports from CMEA 1/	1.139	0.977	NA
Bulgaria	0.178	0.191	0.162
Czechoslovakia	0.181	0.130	0.087
GDR	0.489	0.467	NA
Hungary	0.116	0.089	0.028
Poland	0.097	0.075	0.060
Romania	0.078	0.025	0.014

NA = Not available.

1/ Sum of identified commodities. Totals are likely higher, especially for preliminary 1990.

### Food Aid

Establishing and maintaining a consensus within leadership of the former USSR republics and the population to undertake rapid, thorough reform will be extremely difficult. Some argue that strong and concerted Western pressure to make the needed reforms is essential and that unconditional or poorly conceived aid will enable the former republics to postpone reform. Others argue that aid is necessary to help reformers stay in power.

The former Soviet Union's population will reach 300 million in the next few years. In 1989, the country consumed almost 50 million tons of food grains. In addition it consumed 21 million tons of meat and 110 million tons of milk (which were produced from more than 400 million tons of feed in grain-equivalent). Without meaningful reform, production by the former

USSR farms will not increase significantly. Moreover, consumer demand will remain high. The food economy will be in greater disequilibrium as the former USSR cannot afford to continue imports near the \$15 billion (excluding sugar) spent annually since 1980.

The challenge is to provide enough assistance to help reformers create a legal framework to foster market development, but not discourage domestic producers because of competition from subsidized imports. The decisions made by the West last year and this year have established a set of expectations in the former USSR republics. Credit in one area frees resources for purchases in other areas, even if a direct switching of checks from the financial institutions does not occur. An important question for Western nations is how long they can sustain agricultural credit and aid levels of \$5-10 billion or more per year. Another issue concerns whether the West would end aid and credit programs if nonreform, but democratically-elected, governments came to power.

In the short term, wheat flour, animal products, vegetable oil, and refined sugar imports can quickly reach consumers in critical areas. Grain and protein feed imports are less able to meet immediate consumer needs. Livestock productivity in the former USSR is now about half to two-thirds that in the United States. Imported grain and soy meal fed to livestock in the republics on average will produce substantially less than a similar amount of grain fed to U.S. animals would produce. The republics have a longer finishing time for animal maturity. The final products may not reach neediest consumers because of interrepublic and local trade barriers.

Some argue that processed product imports can be used to cushion all consumers in a highly deficit area from price increases as retail prices are freed. The large size of the former USSR and the limited effect price increases had on demand in 1991 suggest that even large supplies can do little to roll back the manyfold price increases that consumers have experienced since March 1991. Another suggestion is to target imports for distribution to the poorest consumers in the highest cost areas. Such an approach requires substantial Western intervention to assure that supplies reached the neediest.

Sizeable subsidized agricultural imports can undercut domestic production as reform progresses. Subsidized imports create pressure for lower domestic producer prices. In addition, if the traditional allocation systems are used to distribute imports such as feed grains, the imports may not reach the most efficient producers. Imports have traditionally been used to support production in marginal areas. The least productive livestock herds could be maintained. More productive areas may not get

access to feeds to expand production. The disincentive effects will be greater still if trade barriers exist between republics.

The variety of food credit and other agricultural aid programs offered to the former USSR increased in late 1990 and through 1991. Offers of outright donations have reached about \$1 billion, most from Germany and most not completed. Russia reported receiving 18,100 tons of foodstuffs as humanitarian aid in 1991. According to USDA summaries, as of the end of April 1992, about \$15 billion other offers for food assistance could be identified, including almost \$5 billion of U.S. GSM credit guarantees.<sup>88</sup> Almost half the total offers were unused, including most of the EC's \$2 billion package. The offers included about \$10 billion in credit guarantees (including the almost \$5 billion from the United States) and almost \$3 billion in direct credits. Most of the rest were barter deals.

### **U.S. Agricultural Credit Guarantees and Aid Reach \$5 Billion**

The United States allocated \$1 billion in GSM-102 credit guarantees for the USSR in January 1991. In June 1991, it announced another \$1.5 billion, which it allocated by October 1991. In 1991, USDA began allowing more liberal terms for the GSM-102 loans for the USSR than it did for other countries. USDA guaranteed 100 percent of the principal and interest equal to the prevailing rate for 52 week Treasury Bills.

During congressional testimony in October 1991, Secretary Madigan said that the USSR requested another \$3.5 billion in assistance from the United States for food imports. The United States responded on November 20, 1991, with an additional \$1.5 billion. This included \$1.25 billion in GSM-102 credit guarantees, up to \$0.165 billion in humanitarian food aid, and technical assistance projects. The technical assistance projects involve establishing a demonstration farm, developing wholesale markets, establishing agricultural extension activities, and providing U.S. private sector expertise to food processors and distributors. As of April 1, 1992, Operation Provide Hope had transported 2,200 tons of food and medical supplies in 65 flights to 24 locations. Shipments of USDA Grant Aid began in early March to Armenia, Moscow, St. Petersburg, and the Urals. As of March 27, \$144 million of the \$165 million in humanitarian aid was committed and food purchased.

On April 1, 1992, the United States announced another \$1.1 billion of GSM credit guarantees. Secretary Madigan said \$600 million for Russia will be spread over four



monthly installments beginning with May. The \$500 million for the Ukraine and other republics will become available if they meet program requirements. The April 1 announcement brings total GSM credit guarantees in FY 1991 and FY 1992 to \$4.85 billion.

On December 2, 1991, USDA announced the specific commodity allocations for \$0.6 billion of the \$1.25 billion announced in November. USDA allocated the remainder in February, March, and April. On December 27, USDA announced that these GSM credit guarantees would be available for sales to 12 of the 15 former republics of the USSR. USDA would use separate programs with the 3 Baltic countries of Latvia, Lithuanian, and Estonia. On January 23, 1992, USDA announced that it would consider and process applications of credit guarantees for sales to former USSR on a C&F or C.I.F. basis. The debt rescheduling did not affect loans under U.S. GSM-102 credit guarantees since they occurred after January 1, 1991. As of April 1, 1992, all the \$267 million in CCC principal and interest that was due in the first quarter of 1992 had been paid on time.

U.S. agricultural exports to the USSR in FY 1991 were \$1.8 billion (table 23). GSM-102 credit guarantees covered more than 80 percent of this. Exports not covered were primarily corn and soybean meal exports in October-December 1990. At the end of September 1991, the U.S. had exported less than \$1.5 billion of the total of almost \$5 billion in GSM credit guarantees announced for FY 1991 and for FY 1992 as of April 1 (table 24). If the United States completes shipping by September 30, 1992, the remaining credit guarantees announced through April 1, 1992, U.S. exports to Georgia and the 11 CIS republics would be about \$3 billion in FY 1992.

Table 23--U.S. fiscal year agricultural exports to the former USSR 1/

Commodity	1886/87	1987/88	1988/89	1989/90	1990/91
Million \$					
Wheat	325	822	820	550	194
Corn	280	541	1,872	1,849	979
Soybeans	12	172	90	76	99
Soybean meal	0	279	372	304	355
Other	42	120	145	210	131
Total	659	1,934	3,299	2,989	1,758
1,000 metric tons					
Wheat	4,055	8,829	5,294	3,739	2,451
Corn	3,907	5,585	15,573	16,326	9,077
Soybeans	71	831	299	342	441
Soybean meal	0	1,303	1,312	1,405	1,716

1/ Preliminary for 1990/91.

Table 24--U.S. GSM-102 allocations to the former USSR 1/

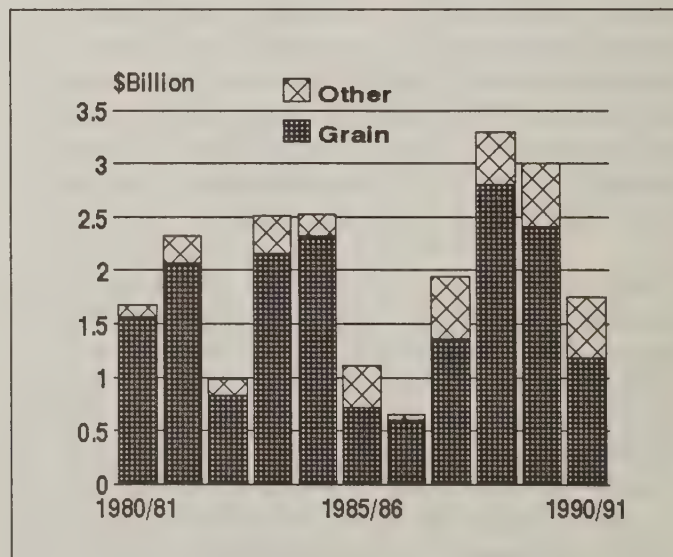
Commodity	FY 1991	FY 1992
Million \$		
Feed grains	1,035	460
Wheat and wheat flour	253	725
Rice	0	7
Protein meals	350	288
Soybeans	123	120
Soy isolates	6	0
Poultry meat	35	18
Almonds	9	5
Hops	2	5
Vegetable oil	0	52
Transport	NA	155
Unallocated	NA	1,100
Total	1,915	2,935

NA = Not available.

1/ As of April 1, 1992.

Exports to all the 15 republics that made up the former USSR will be higher than that possible from the GSM credit guarantees announced as of April 1, 1992. The November 1991 announcement included \$165 million of humanitarian food aid. During a January 1992 conference, President Bush announced that he would seek another \$645 million of humanitarian aid, which would include food. In addition, USDA announced 100,000-ton, \$11 million donations of CCC stock corn under Section 416(b) for each Baltic republic. Any new programs could also increase the total. The record for fiscal year exports to the USSR is \$3.3 billion in 1988/89 (figure 1).

Figure 1  
U.S. Fiscal Year Exports to the USSR



U.S. FY 1991 agricultural exports to the USSR were down about \$1.2 billion from FY 1990's \$3 billion. (Calendar year 1991 U.S. farm exports to the USSR were up about \$0.2 billion from 1990 [table 25]). An important reason for the declines in 1990 calendar year and 1991 fiscal year was a smaller volume of corn and wheat purchases by the USSR in the second half of 1990. In 1990, the USSR had harvested a near record grain crop of 235 million tons (bunkerweight). This crop was well above the 1986-89 average of 208 million tons. In addition for FY 1991, lower corn, soybean meal, and especially wheat prices explained more than \$200 million of the export decline.

The unit value of Soviet wheat imports from the United States in FY 1990 was \$147 per ton. Prices for U.S. wheat sales to the former USSR in FY 1991 averaged \$79 per ton, as world prices fell and U.S. per ton bonuses increased. The USDA Export Enhancement Program covered all wheat purchases by the former USSR. The FY 1992 bonus through April 1, 1992, on U.S. wheat sales to the USSR averaged \$52 per ton, compared with an average of \$20 per ton in FY 1990. Bonuses on U.S. wheat sales to the USSR under the EEP since the first in 1987 totaled over \$1 billion as of April 1, 1992 (table 26).

During 1971-91, the United States shipped the former USSR 236 million tons of grain valued at \$28 billion.

Table 25--U.S. calendar year agricultural exports to the former USSR 1/

Commodity	1989	1990	1991
Million \$			
Wheat	827.1	542.5	421.9
Corn	2,135.4	1,100.9	1,231.0
Soybeans	82.3	61.1	166.5
Soybean meal	382.6	340.5	499.8
Poultry meat	9.4	97.6	65.3
Butter	10.8	57.3	0
Fruits, nuts, and berries	19.5	15.7	9.4
Cotton	0	1.3	1.4
Tallow, inedible	26.0	22.6	5.2
All other	97.8	31.0	94.8
Total	3,596.9	2,270.5	2,495.3
1,000 metric tons			
Wheat	5,342.7	3,690.4	4,918.8
Corn	18,566.1	9,471.2	11,310.8
Soybeans	296.6	274.4	741.8
Soybean meal	1,417.9	1,568.4	2,322.0
Poultry meat	12.2	137.1	83.1
Almonds, shelled	7.2	5.0	2.5
Cotton, excluding lint	--	1.0	1.0
Tallow, inedible	77.3	67.8	15.3

-- = None or negligible.

1/ Includes transshipments through Canada.

Table 26--U.S. EEP wheat purchases by the former USSR 1/

Date	Amount	Bonus rate 2/	Total bonus
	Tons	\$/ton	\$
1986/87	4,000,000	41.52	166,093,500
1987/88	8,805,000	32.00	281,802,278
1988/89	4,696,000	20.59	96,704,290
1989/90	3,799,350	19.95	75,815,966
1990/91	3,173,145	45.13	143,205,454
1991/92	5,916,670	51.58	305,153,840
Total	30,390,165	35.17	1,068,775,328

1/ October/September year. Sales as of 4/01/92.

2/ Weighted average.

Grains have accounted for about 85 percent of U.S. farm exports to the former USSR. Soybeans and soybean meal accounted for about 10 percent since 1980. With or without reform, the level and structure of U.S. farm exports to the former USSR could change from that of the last 20 years.

Inappropriate macroeconomic policies, more than trends in food supply, worsened food market imbalances in recent years in the former USSR. Without reform, which must include changes in the republics' macroeconomic policies, the food problem cannot be solved.

Decisive economic reform would sharply lower food consumption and waste and cut production of many commodities, including animal products, in the near term. (Poland has shown the effects of such reforms.) Grain imports would decline substantially. Feed protein imports, especially of soybean meal, could remain sizeable. Livestock managers in the former USSR even now understand that inadequate feed protein partly explains their low feeding efficiency and animal productivity.

Without successful reform, grain imports by the former USSR also would drop sharply as the economy continued to falter. The former USSR's grain imports averaged over 37 million tons per year during 1980-91. The republics of the former USSR likely would not continue such high imports without continued massive aid from the West.

A preliminary ERS analysis examined the effects on U.S. farmers and consumers of a sharp drop in former USSR grain imports. The analysis assumed the former USSR imported only 5 million tons per year through the mid-1990's. Adjustments in U.S. domestic use and U.S. exports to other destinations in response to lower prices would offset part of impact on U.S. farm prices. U.S. producer wheat prices could fall 10-20 cents per bushel and corn prices about 10 cents with such low exports to



the former USSR. With lower prices, program participation rates and deficiency payments likely would increase slightly. U.S. retail prices of wheat-based goods would fall about a fifth of a percent for every percent decline in U.S. crop price of wheat.

## MFN

On December 4, 1991, President Bush signed HR 1724 that granted permanent, unconditional most favored nation (MFN) status to the former USSR republics of Estonia, Latvia, and Lithuania. On December 9, 1991, President Bush signed into law a resolution (HJRes 346) approving the U.S.-USSR trade agreement, including reciprocal most-favored-nation status. The breakup of the Union means that agreements must be developed and implemented for each republic. The three Baltic States have MFN status. Armenia has MFN status. As of May 1992, the United States is in the process of negotiating trade agreements that will lead to MFN status for the remaining countries of the former USSR.

MFN will likely have no major effect on agricultural trade with the former USSR republics. The former USSR will have difficulty in increasing exports to the United States of commodities affected by the MFN tariff reductions. This

Table 27--U.S. trade with the former USSR, calendar year

Year	U.S. exports		U.S. imports	
	Total	Agricultural	Total	Agricultural
\$ Millions				
1972 1/	572	459	88	4
1973 1/	1,287	1,017	204	5
1974 1/	631	324	335	9
1975 1/	1,871	1,170	243	7
1976 1/	2,424	1,605	214	8
1977 1/	1,637	1,053	221	11
1978 1/	2,328	1,765	529	12
1979 2/	3,749	3,000	873	15
1980 2/	1,601	1,138	432	10
1981 2/	2,450	1,685	357	12
1982 2/	2,605	1,871	229	11
1983 2/	2,002	1,473	341	10
1984 2/	3,343	2,878	556	11
1985 2/	2,460	1,923	407	9
1986 2/	1,257	658	557	17
1987 2/	1,492	938	408	22
1988 2/	2,849	2,246	564	19
1989 2/	4,412	3,597	691	20
1990 2/	3,101	2,271	1,032	17
1991 2/	3,554	2,495	794	12

1/ Total and agricultural exports adjusted for grain and oilseed transshipments through Canada, West Germany, Belgium, and the Netherlands. 2/ Total and agricultural exports adjusted for grain and oilseed transshipments through Canada.

includes manufactures plagued by quality problems, but also energy products. In 1991, U.S. imports of goods from the former USSR fell 23 percent, as imports of precious metals dropped 52 percent and imports of mineral products fell 40 percent (table 27).

Little of any increased earnings from exports to the United States would likely be used to increase food imports from the United States because of the agreement. The United States continues to capture large shares of the former USSR agricultural import markets when it is price competitive, including credit and other considerations.

In 1991, the United States imported less than \$12 million in agricultural goods from the USSR, down substantially from the 1987 peak of \$22 million (table 28). The former USSR has few agriculturally related export commodities to compete with U.S. products in the U.S. market.<sup>89</sup>

Raw furskins are duty free with or without MFN status. (The non-MFN duty applies to processed furskins.) More than 97 percent of the \$117 million of total Soviet furskin exports to all sources in 1989 were raw furskins, including the approximately 7 percent sent to the United States. The United States has always allowed sable imports from the USSR and in 1988 ended a 36-year ban on mink and several other furskin imports from the USSR. In 1991, U.S. furskin imports from the USSR continued to decline. At \$3.5 million, they were only 17 percent of 1987's peak.

Cotton lint, which accounted for almost 50 percent of Soviet agricultural exports and faces high non MFN tariffs, could be an area for export growth. The programs to decrease the reliance on cotton monoculture in Central Asia are cutting production, which could cut exports. However, reduced domestic cotton demand could offset some of the declines. Furthermore, the republics will likely try to increase the share of exports going to the West for hard currency. In the past, about 80 percent of Soviet cotton exports were on a soft currency or barter basis to its allies. (Kathryn Zeimetz)

Table 28--U.S. agricultural imports from the former USSR

Commodity	1989	1990	1991
\$ million			
Casein and mixture	0.5	0.4	4.1
Furskins	13.8	9.6	3.5
Wool	1.5	--	0.9
Other animal products	0.2	4.9	0.9
Cotton	2.8	--	0.8
All other	1.1	2.3	1.5
Total	19.9	17.2	11.7

-- = Negligible or none.

## Possible Forms Of Economic Union Among the Former CMEA Countries

Although political developments within the former Soviet bloc countries have created a climate in which potentially enriching economic reform can be attempted, the collapse of the bloc and demise of the USSR have, in the short run, caused serious economic disruption. A major casualty has been economic relations (mainly trade) between the former CMEA countries (FCC), as well as between the republics of the former Soviet Union.<sup>90</sup> This section examines new forms of economic integration that the FCC could create, consistent with market-oriented domestic reforms. Emphasis in the discussion is on the institutions and policies for promoting trade, particularly in the short run before well-functioning domestic market systems are in place.

### *Decline in Trade Among the Former CMEA Countries*

Within the former Soviet bloc, foreign trade was an integrated part of a country's economic planning, which required that trade be state-controlled. To ensure this, trade was a state monopoly and each country's currency inconvertible. Currency convertibility made no sense in such a system, for its effect would only be to help facilitate unplanned, illicit trade. Inconvertibility, however, deprived the bloc countries of the means for financing bilateral trade deficits (other than using precious Western hard currency reserves). Consequently, pressure existed for bilateral balancing of trade, such that trade between countries took the form of large-scale barter.

The collapse of central planning in these countries, as well as the breakup of CMEA (1990) and the USSR (1991), has deprived them of this system, imperfect though it was, for conducting trade. The FCC, though, cannot create overnight the trade institutions and procedures of the Western market economies. The main short run problem is financing trade. Trade decision-making has been decentralized, but decentralized trade requires convertible currencies for ease of financing, which most FCC still lack.<sup>91</sup> The republics of the former USSR in 1991 had the seeming advantage that the ruble continued as the uniform currency, which under normal circumstances would have facilitated trade financing among them. Yet, the ruble's declining acceptability throughout the former Union as a means of payment, a consequence of inflationary fiscal and monetary policies and the collapsing political legitimacy of the All-Union government, greatly impeded trade.

The lack of convertible currencies by most of the FCC, and the unattractiveness of the ruble within the former USSR, resulted in most trade within the former bloc

reverting to crude barter. The collapse of planning and concomitant decentralization of economic decision-making power, though, reduced the coordinating role governments played in putting together large barter deals. Barter became even more difficult than under CMEA. The result is that in 1991 trade among the FCC, including the flow of goods between the CIS republics, fell significantly.

Two reasons exist why the disruption of trade among the FCC is harmful. The first is that trade based on planning has resulted in strong dependencies among countries with respect to various products, more so than would have occurred had the nations been free-trading market economies. All the Central European members of CMEA heavily exported to and imported from the former Soviet Union. Also, the bias of Soviet planners for large-scale enterprises has left the new CIS republics with the legacy of being heavily dependent on each other for industrial products. In 212 of the main 344 industrial product groups (62 percent) in the former Union in 1988, the largest single enterprise within the product group accounted for more than half of all the group's output.<sup>92</sup> All the republics, as well as the former bloc countries of Central Europe, depend heavily on the Russian Republic for supplies of fuel and metals. Disruption in the major trade flows between the FCC carries the risk of crippling production bottlenecks.

The second reason impediments to trade are harmful is that they will hinder the development of trade based on comparative advantage (CA).<sup>93</sup> Although trade based on state planning resulted in commerce between countries being substantial in certain goods, CA was not the driving force of most trade. In fact, in agriculture in the former Soviet economy, planning and price policies retarded specialization within regions. As a result, less interrepublic complementarity and exchange based on CA probably occurred in agriculture than would have in a market system. In order to extract the differential rent from superior climate and soils, the Soviets used a system of differentiated prices. Low-cost producing regions received low prices, and high-cost regions high prices. The effect was to discourage specialization by regions that had natural advantages in the production of certain output.<sup>94</sup> This is just one example demonstrating that opportunity exists for the FCC to increase mutually beneficial trade based on CA.

In fact, a conflict can exist in countries between the desire to maintain existing trade links to avoid short run disruption and the desire to move to trade based on CA over the longer term. Central planning, combined with the Soviets' efforts to integrate the Central European



economies into their own by imposing certain specializations of production, has distorted the production and trade of the Central Europeans from what would have occurred had they been free and open market economies. Over time, existing trade links must be modified in order for these countries to develop in the most economically efficient manner. Nonetheless, whether the concern is to maintain commerce to avoid short run disruption of prior trade flows or to encourage trade restructuring, new forms of economic integration must develop to replace those lost with the demise of central planning and CMEA.

### ***Full Economic and Monetary Union***

The strongest form of economic integration would be a full-fledged *economic and monetary union*. Member countries would use a single currency, follow common fiscal, monetary, and tax policies, allow free trade and free movement of factor inputs (labor and capital) among themselves, and adopt common trade policies toward nonmembers. Yet, in light of political developments in the former bloc in the last few years, such extreme integration is not feasible. The Central Europeans would not tolerate the required loss of national control over economic affairs.

Talk in the former Soviet republics following the coup attempt of a "common economic space" (*obshchee ekonomicheskoe prostranstvo*) and "ruble zone" showed concern for maintaining close interrepublic economic ties. (Though the integrating policies implied by these phrases were never completely spelled out.) Whether a high degree of economic unity could be preserved that might approach a full economic union depended mainly on whether the republics would keep the ruble as a common currency. If the ruble were uniformly retained, rational economic policy would require that the republics also follow common fiscal and monetary policies. Yet, by early 1992 the centrifugal political pressures following the dissolution of the USSR in December had made an economic union among most of the republics of the former Union unlikely. The Baltic States, Ukraine, Byelarus, and Moldova appear committed to creating their own currencies and controlling their national macroeconomic policies. A major reason is fear that economic union would involve ceding too much political and economic sovereignty to a domineering Russia.<sup>95</sup> Yet, because of concern that economic independence might be too disruptive and difficult, certain Asian CIS republics might consider joining Russia in an economic union.

Rejection of an economic union, and with it a common currency, leaves unresolved the critical problem of financing trade among the FCC, particularly in the short run. A solution would be for all countries' currencies to

be made fully convertible. This would allow trade to be financed as easily as in the Western market economies, particularly if exchange rates floated. Ukrainians, for example, who wished to import Russian goods could obtain the Russian rubles necessary for purchase by buying rubles with their own Ukrainian currency in the established currency market. Floating rates would have the additional advantage of correcting trade imbalances.

Although the FCC might each want their own currency, they might not move quickly to convertibility. The question of convertibility raises the conflict between maintaining the security of existing foreign economic relations and restructuring production and trade based on CA. Economists might argue that the long-term benefits of rapidly establishing convertibility should outweigh the short run costs. Nevertheless, governments might be unwilling to accept the reduction in their control over foreign economic activity and the shocks from opening their economies to the rigors of the world market that would accompany convertibility. Although CMEA died in 1990, only Poland, Czechoslovakia, and Hungary have moved to convertibility, and then only for trade purposes.

Also, even if most of the FCC moved quickly to convertibility, suspicion about the stability of these currencies' value would be strong within the former bloc. As mentioned above, floating rates have the advantage of correcting trade imbalances. Yet, if newly established convertible currencies were allowed to float, confidence in them, and thus acceptability, would probably be too low for them to serve effectively as trade-financing currencies. An effort to strengthen confidence by creating a system of fixed, as opposed to floating, rates would create the problem of financing and correcting trade imbalances.

### ***Financing Trade: A Payments Union***

The worry that many of the FCC might be incapable of, or simply opposed to, rapidly establishing convertibility has motivated ideas for a system by which they could manage and finance trade during the interim before well-functioning convertible currencies exist. One idea is to finance trade with Western hard currencies, say using the dollar as the main currency of account. This, however, would require substantial reserves of foreign exchange. Also, the desire by countries to use scarce hard currency to buy Western goods rather than less desirable FCC products might severely retard intra-bloc trade.

Another idea is for the FCC to create a *payments union* (PU), of the type that existed among the West European countries during the 1950's. The union would work by allowing an importer in country A to pay for goods from country B with A's national currency. The exporter in B



would be required to exchange the currency obtained from A for his own national currency, using agreed-upon exchange rates between member countries' currencies. The central-clearing authorities in each country would thereby acquire currencies of other member nations. Countries would then clear accounts by exchanging their accumulated foreign currencies for their own currency with member countries, again using established exchange rates.

Jozef van Brabant proposed a PU for the former bloc (while the USSR still existed), while Oleh Havrylyshyn and John Williamson (H&W) advocate one for the CIS republics.<sup>96</sup> The main reason a PU would stimulate trade is that, as opposed to the system under CMEA, a trade surplus that, say, country C has with country D could be used by C to cover a trade deficit with some other nation. Although currencies might not be wholly convertible, surpluses would be transferable. Such transferability would end the trade-retarding pressure for bilateral balancing that existed under CMEA.

Yet, a deficiency of a PU is that it does not provide a means for financing a country's net trade deficit from its aggregate trade within the PU. Put another way, countries that run an aggregate net surplus within the PU have no way of being compensated for the surplus. Consequently, they are implicitly extending credit to net deficit countries. The durability of a PU would rest on the willingness of surplus countries to tolerate this outcome. In a PU involving the FCC, the Russian Republic would certainly be a large net surplus earner, particularly if world prices were used for the fuels and metals it exported. Russia would be more likely to subsidize the CIS republics alone in this manner rather than the CIS and Central Europe combined. To motivate Russia to participate in a CIS PU, H&W suggest that Western aid be used to compensate Russia for part of its subsidizing surplus.<sup>97</sup>

#### ***Other Possible Forms of Economic Union***

A PU would establish the institutional means by which trade could be financed. A separate issue to be decided is the degree to which the FCC will restrict trade and the movement of factor inputs between them. In a *common market* member countries would have separate currencies and independent fiscal and monetary policies, but would have no restrictions on intermember trade or the movement of factor inputs. No constraints would exist on the flow of investment or the migration of workers seeking employment between member countries. Members would also maintain common trade policies (such as tariffs and quotas) vis-a-vis nonmember nations. The European Community will establish a genuine common market in 1992 (the so-called "EC 92").

A less integrated alternative would be a *customs union*. This has the same features of a common market, except that factor inputs cannot move freely between members.<sup>98</sup> The European Community before 1992 was a customs union, and by allowing free movement of capital, though not labor, was an incomplete common market.<sup>99</sup>

#### ***Well-functioning Prices the Main Requirement for Economic Union***

The main domestic reform requirements for effective, trade-promoting economic integration concern prices. Since currency convertibility is necessary at least in the long run, countries must maintain aggregate price stability. Chronic inflation would put constant pressure for depreciation on a country's currency. This would erode the trust in its value necessary for it to function as an effective convertible currency. Price stability requires noninflationary fiscal and monetary policies, which for some CIS countries might in the short run have to be austere anti-inflationary.

Though the aggregate price level must be stable, at the micro level prices must be free from control. Well-functioning competitive markets will be necessary to generate such prices. Prices must be free if they are to convey the proper information on the real economic value of goods necessary for profitable decentralized trade based on CA. Assume a government imposes a strong system of price controls, and decentralized entities are then allowed to trade at the controlled prices. The country would reduce its potential gains from trade based on CA, and the exchange of certain goods might even result in a net loss rather than gain. This would happen, for example, if the controlled price at which foreigners could buy goods severely understated the real cost of producing them. Price controls favorably alter the prices faced by either producers or consumers, which is equivalent to subsidizing them. If unrestricted trade allows foreigners to buy or sell at the controlled prices, the country will lose by extending the subsidy to foreigners.<sup>100</sup> As a result, government control over prices usually also requires control over trade.<sup>101</sup>

An illustration is the main current trade restriction in the CIS republics--constraints on exports, especially food. In late 1991 and early 1992, almost all the republics established restrictions on exports (particularly food), not only to non-CIS countries but also to other CIS republics. For example, in early January the Russian Republic banned the export of about 60 types of food and consumer goods, and established export tariffs and quotas for various other products, such as fuel.<sup>102</sup> A common export "restraint" concerning food in the republics has been preventing nonrepublic citizens from buying at



republic state stores. The creation of quasi-currency coupons, in the Ukraine and Byelarus, for example, is an indirect way of preventing sale to nonrepublic citizens. The coupons are necessary for purchase of food and other designated goods within the republic.

In examining the reason for the export restrictions, one might argue that the motive is simple. Shortages of food, fuel, and other products exist, and the republics understandably want to ensure that their own population is adequately fed and provided for before allowing exports. The nature and cause of most of the shortages, though, reveal that the reasons behind the export restrictions are more involved. Some areas in the republics might genuinely be suffering from serious supply shortfalls of certain goods, particularly meat or milk. Yet, the main reason shortages of food and other consumer products have grown since 1985 is that rising money incomes have fueled growing consumer demand. Since prices for food and consumer products had been kept, and in many republics still are, below market-clearing levels, shortages have existed in the sense that consumers cannot purchase as much as they want at the low prices.<sup>103</sup>

State-set prices below market-clearing levels, however, subsidize those consumers who can purchase at those prices. If a country allowed the goods to be exported, or equivalently, sold to foreigners who come to buy, it would

be subsidizing foreigners rather than natives. To prevent the export of subsidies, price controls require trade controls.<sup>104</sup>

A qualification to the argument for price liberalization in the short run is that the overconcentrated industrial structure in the new republics means that free prices would allow monopoly or oligopoly producers to charge high prices at consumers' expense. Consequently, the freeing of producer prices should be tied in part to the speed at which industries can be privatized and broken up. This is just one of the many interrelationships that make economic reform in the FCC so difficult. Nonetheless, even if CIS republics do not immediately free producer prices, the argument for liberalizing consumer prices (though with some compensation to the most needy) is strong. Also, opening the domestic economy up quickly to the world market will allow foreign competition to reduce the market power of domestic producers.

The problem with fulfilling the price requirements for free trade is that in the short run fiscal and monetary austerity, as well as the abolition of subsidizing consumer price controls, will cause serious economic hardship for certain strata of the population. Economic reform in the FCC involves the delicate act of trying to minimize short run social hardship in pursuit of long run economic gains. (William M. Liefert)

## Agricultural Production and Consumption Declines Continue

Gross agricultural production in 1992 will likely show further declines. Animal product output will continue to fall as producers retrench in response to lower feed supplies and to decreased consumer demand. More normal weather will raise crop output in 1992. In the spring and summer of 1991, a drought damaged crops, especially in parts of Kazakhstan, the Southern Urals, and the Volga Valley. In the western areas of the country, rain later partially offset the drought's effects, but hindered harvesting. Grain, sunflowerseed, and sugarbeet production declined sharply. In February 1992, the Russian Ministry of Economics and Finance predicted a 10 percent increase in Russia's 1992 grain and sunflowerseed production, 19 percent for sugarbeets, and increases also for potatoes and vegetables. The same report forecast a 10 percent decline in livestock production.

A number of factors will restrain a rebound in crop production. The decline in production and input deliveries can reduce supplies even to efficient producers willing to pay the higher prices. The importance of input declines on 1991 production should not be overstated, however. For example, grain yields increased 26 percent from 1988 to record levels in 1990. During the same period, fertilizer deliveries to farms were down 21 percent. Input deliveries have been falling since 1986-87, but agricultural production was record high in 1989. In the past, improper and excessive use of inputs of poor quality limited yield responses. Armenia managed to increase agricultural output 11 percent in 1991, despite being one of the most disadvantaged for input deliveries. The republic, however, has been the most aggressive of the republics in moving away from large scale agriculture to improve the incentive structures.

With the breakdown of administrative control, economic factors have become more important reasons for realignments and changes in input use and production decisions. Higher input costs will squeeze out high cost producers to the extent that the republics restrain subsidies to such producers. In 1991, the national government reduced bonuses and the number of pricing zones. The bonuses and price zones supported production in marginal areas and by inefficient producers. With the change, inefficient producers face lower prices than before and efficient producers, relatively higher prices. Although productivity gains should result, production could decrease. Inefficient producers can cut back on production faster than efficient producers can gear up.

Less use of the centralized storage and processing facilities, when local facilities are not well developed, may be increasing losses. Conversely, increased economic

incentives for farms and distributors may be improving use of whatever resources are available. Underreporting in 1991 may have exaggerated the production declines. Less government supervision and the desire of areas to keep products for their own use and for barter would be reasons for underreporting to occur.

The restructuring of large state and collective farms to improve management and incentives may be disruptive in the short term. Increases in private production will offset some of the decline. Small farms face fewer restrictions on size of land and livestock holdings than they have in the past. They have more freedom to market through alternative channels. Higher prices and increased anxiety about self sufficiency also are encouraging private sector production. Private sector potato output likely explains the increase in potato production in 1991 (table 29).

Table 29--Area, yield, and production of selected crops, former USSR

Year	Potatoes	Vegetables	Fruits, berries, grapes
Area			
1,000 hectares			
1981-85 average	6,771	1,710	3,321
1986	6,373	1,698	3,167
1987	6,239	1,713	3,123
1988	6,079	1,726	3,121
1989	6,008	1,687	3,146
1990	5,815	1,592	3,129
1991	5,751	1,701	NA
Yield 1/			
Tons per hectare			
1981-85 average	11.5	16.1	5.4
1986	13.7	16.4	5.8
1987	12.1	15.9	4.6
1988	10.3	15.7	4.8
1989	12.0	15.9	4.7
1990	10.9	15.5	4.8
1991	11.2	15.2	NA
Production			
1,000 tons			
1966-70 average	94,813	19,472	9,710
1971-75 average	89,782	22,974	12,381
1976-80 average	82,571	26,313	15,176
1981-85 average	78,351	29,226	17,807
1986	87,186	29,783	18,338
1987	75,908	29,249	14,321
1988	62,705	29,259	14,938
1989	72,205	28,703	14,798
1990	63,631	26,584	15,099
1991	2/ 64,500	3/ 26,100	NA

NA = Not available.

1/ Soviet reported yields vary from calculated yields in some instances. 2/ Includes 61,300 for CIS, 226 for Georgia, and estimates for the Baltics. 3/ Production for CIS was reported down 2 percent. The same decline is applied to the Baltics and Georgia.



Sharply higher retail prices and falling real incomes will reduce consumption of animal products and some other foods. Part of these reductions will be due to reduced waste throughout the marketing and consumption channels.

The reductions in gross agricultural production and in consumption do not signal widespread hunger in the former USSR. They do signal diets with more bread and potatoes and less animal products and should mean less waste. These shifts will be most pronounced in those areas that are not surplus agricultural producers and for those with lower incomes. Consumption of meat, vegetable, and sugar in fact probably increased in some localities. The development of alternative marketing channels is cutting sales through the state food system, where prices were generally cheaper. The declining supplies there increased consumer unrest in 1991.

Per capita consumption varies greatly within the USSR's former territory. Citizens of Russia on average consumed about 2.5 times more meat and dairy products than those in Uzbekistan in 1990. The Baltic residents consumed even more.

The production and consumption declines must be put in perspective. The 1991 declines in agricultural production occurred from near record levels in 1990. During 1986-90, grain and meat production increased 20 percent above 1981-85. Gross agricultural production reached a record level in 1989, up 20 percent from 1980.

With a population increase of less than 1 percent a year, Soviet average per capita meat consumption increased during the 1980's and remained at a record level in 1990. Soviet daily per capita intake in 1990 near 3,400 calories was well above the world average of about 2,700 calories. Soviet per capita meat consumption approached that in Great Britain and Sweden, although the Soviets got many more calories from bread products than did U.S. consumers.

The food problem in the former USSR is widely misunderstood. The major problem with the production side of the food economy is high cost production rather than the absolute production level. The technical infrastructure is clearly inadequate, but it has been for years.

Partial reforms and inappropriate macroeconomic policies are the primary causes for worsened food market imbalance in recent years. Lines for food and other goods were the rule in the USSR long before Gorbachev. The situation has worsened since 1985 for several reasons. National leaders allowed government spending to increase

rapidly while revenues showed little increase. The resulting state budget deficit had direct inflationary effects because money creation financed almost all the deficit. Excessive growth of the money supply, combined with continued administrative price controls, greatly reduced trade flows at all levels. The decline of the command system and problems in developing markets also worsened distribution problems.

Radical economic reform will cut consumption in the short term and is essential to balance the food economy. The Polish, Hungarian, and Czech experiences in 1990-91 show that freeing prices and other reforms (including restricting money supplies) cut demand for animal products and other foods by 20 percent or more. Entering 1992, producers in those areas were looking for export markets for excess agricultural production.

## Grain Sectors in Flux

With the breakup of the USSR and economic reform in various stages of progress in the successor countries, production, consumption, and trade of grain in this region is taking place in an increasingly changed environment. Grain production prospects this year are relatively favorable. Increased winter grain area and favorable overwintering conditions set the tone for higher output, but the harvest also depends on weather conditions through the remainder of the season. While input supplies continue to decline, a collapse has not yet taken place. The prospects for further resource declines in 1993 and beyond are very real, however. Changes in domestic grain utilization have generally paralleled trends in Eastern Europe during the last two years. The most dramatic change is the large drop in feed use of grain, which is due in part to import constraints, but also follows from changes in the economic systems of these countries.

While breaking the state monopoly on grain marketing is a logical part of moving to a market economy, the reluctance to take large steps in this direction is apparent in all countries of the region. Because of the current crisis, retreat of the state from marketing control is viewed as too risky. Concessions are being made to farms, however. For example, the Russian Government has promised to pay farmers a free market price this year, which represents a major price increase. Nevertheless, reluctance on the part of farms to sell grain to the State is expected to continue in 1992/93.

Grain imports into the countries of the former USSR are expected to decline in 1992/93 to 27 million tons, from 38

Table 30--Area and bunkerweight yield and production of grain, former USSR 1/

Year	Wheat 2/			Rye	Barley	Oats	Corn	Other 3/	Total grain	
	Winter	Spring	Total							
Area										
1,000 hectares										
1971-75 average	18,443	43,025	61,468	8,500	28,370	11,310	3,596	10,743	123,987	
1976-80 average	20,471	40,240	60,711	7,714	34,011	12,080	2,969	10,421	127,905	
1981-85 average	18,709	35,023	53,732	9,331	30,530	12,352	4,000	11,441	121,386	
1986	16,632	32,096	48,728	8,741	29,964	13,173	4,223	11,648	116,477	
1987	15,319	31,365	46,684	9,725	30,654	11,790	4,573	11,786	115,212	
1988	18,313	29,745	48,058	10,115	29,732	10,946	4,431	11,630	114,912	
1989	19,039	28,637	47,676	10,745	27,642	10,751	4,120	11,342	112,276	
1990 4/	20,700	27,500	48,200	10,400	26,100	10,700	2,800	11,300	109,500	
1991 4/	19,600	26,400	46,000	8,500	28,500	10,700	3,500	11,300	108,500	
Yield 1/										
Metric tons per hectare										
1971-75 average	2.26	1.10	1.45	1.35	1.53	1.31	2.84	1.19	1.46	
1976-80 average	2.48	1.22	1.64	1.41	1.62	1.42	3.22	1.21	1.60	
1981-85 average	2.28	1.01	1.45	1.53	1.42	1.42	3.27	1.22	1.49	
1986	2.80	1.43	1.89	1.76	1.80	1.66	2.95	1.22	1.80	
1987	3.02	1.18	1.78	1.86	1.91	1.57	3.23	1.55	1.83	
1988	2.98	1.01	1.76	1.83	1.50	1.40	3.62	1.40	1.70	
1989	3.33	1.01	1.94	1.87	1.75	1.57	3.71	1.80	1.88	
1990 4/	3.41	1.36	2.24	2.02	2.34	1.68	3.47	1.52	2.15	
1991 4/	3.11	0.83	1.70	1.59	1.51	1.36	3.14	1.33	1.61	
Production										
1,000 metric tons										
1971-75 average	41,590	47,345	88,935	11,493	43,289	14,812	10,215	12,810	181,554	
1976-80 average	50,725	48,948	99,673	10,880	55,150	17,161	9,568	12,595	205,027	
1981-85 average	42,726	35,204	77,930	14,280	43,480	17,540	13,080	14,001	180,311	
1986	46,528	45,778	92,306	15,248	53,889	21,929	12,479	14,217	210,068	
1987	46,237	37,075	83,312	18,055	58,409	18,495	14,808	18,286	211,365	
1988	54,495	29,950	84,445	18,517	44,463	15,287	16,030	16,317	195,059	
1989	63,495	28,812	92,307	20,057	48,509	16,828	15,305	17,918	210,924	
1990 4/	70,500	37,500	108,000	21,000	61,000	18,000	9,800	17,200	235,000	
1991 4/	58,000	20,000	78,000	13,500	43,000	14,500	11,000	15,000	175,000	

1/ Some figures may not add or calculate because of rounding. 2/ Production data for winter wheat and spring wheat derived from official area and yield data for 1981-85. 3/ Includes millet, buckwheat, rice, pulses, and miscellaneous grains. 4/ USDA estimates.

million in 1991/92. Credit guarantees and food assistance will remain an essential part of this region's grain imports. The breakup of the USSR and the erosion of the CIS are making it more and more difficult for most countries in the region to maintain grain import patterns from the past.

#### **Production Outlook--Not All Bad**

Early indications point to some recovery in grain production in the countries of the former USSR in 1992. USDA estimated grain production in 1991 at 175 million tons, bunkerweight. Official sources in the former Soviet Union reported cleanweight production for 1991 of slightly over 160 million tons. Based on USDA bunkerweight production data and newly released Soviet data on cleanweight production, these figures indicate the lowest level of grain production since the early 1980s (tables 30 and 31). Poor weather conditions and the breakdown of economic and distribution ties partially explain the decrease in grain production in 1991. Data on cleanweight production by grain type for the former USSR and the major grain producing republics is in table 32.

Table 31--Cleanweight production of grain, by republic

Republic	Average 1981-85	1986	1987	1988	1989	1990
Million metric tons						
Russia	92.0	107.5	98.6	93.7	104.8	116.7
Ukraine	37.9	41.5	48.0	45.4	51.2	51.0
Byelarus	5.4	6.1	7.8	5.9	7.4	7.0
Moldova	2.4	2.0	2.0	3.0	3.3	2.5
Kazakhstan	20.1	26.6	25.7	21.0	18.8	28.5
Uzbekistan	2.4	1.2	1.7	2.1	1.5	1.9
Kyrgyzstan	1.3	1.6	1.8	1.7	1.6	1.5
Tajikistan	0.3	0.2	0.3	0.4	0.3	0.3
Turkmenistan	0.3	0.3	0.3	0.4	0.4	0.4
Armenia	0.2	0.3	0.3	0.3	0.2	0.2
Azerbaijan	1.2	1.0	1.1	1.4	0.8	1.4
Georgia	0.6	0.6	0.6	0.7	0.5	0.7
Lithuania	2.5	2.8	3.1	2.7	3.3	3.3
Latvia	1.3	1.5	1.6	1.1	1.6	1.6
Estonia	0.8	0.9	0.9	0.4	1.0	1.0
Total	168.7	194.0	193.8	180.2	196.7	218.0

Sources: *Narodnoe khozyaistvo, SSSR*, 1991, p. 471 and *SSSR v tsifrakh 1990*, p. 235.



Table 32--Cleanweight production of grain, by type, former USSR, Russia, Ukraine, Kazakhstan

Area	Wheat	Rye	Corn	Barley	Oats	Millet	Buckwheat	Rice 1/	Pulses	Total 2/
Former USSR										
Million metric tons										
Average 1981-85	73.6	13.0	13.1	40.5	15.7	2.1	0.9	2.4	7.1	168.7
1986	86.6	13.8	12.5	49.5	18.9	2.2	0.9	2.4	7.0	194.0
1987	77.3	16.1	14.8	53.3	15.9	3.6	1.1	2.4	8.8	193.8
1988	78.8	16.9	16.0	40.6	13.2	2.9	0.9	2.6	8.0	180.2
1989	87.2	18.3	15.3	44.9	15.0	3.7	1.1	2.3	8.7	196.7
1990	101.9	22.2	9.9	52.5	15.6	3.2	1.4	2.2	8.9	218.0
1991 3/	73.2	12.8	9.0	39.4	12.6	3.2	NA	1.3	NA	4/ 151.5
1992 5/	85.0	17.5	12.1	44.7	13.8	3.4	NA	1.5	NA	4/ 178.0
Russia										
Average 1976-80	50.5	6.2	1.8	28.6	12.5	1.1	0.4	1.1	3.7	106.0
1981-85	38.7	9.0	2.8	21.7	13.0	1.3	0.5	1.1	3.8	92.0
1986	47.4	9.7	1.7	25.6	15.7	1.4	0.5	1.2	4.2	107.5
1987	36.9	11.1	3.8	26.1	12.3	2.4	0.6	1.1	4.2	98.6
1988	40.0	12.5	3.8	19.4	10.6	1.8	0.5	1.1	4.1	93.7
1989	44.0	12.6	4.7	22.2	12.0	2.8	0.8	1.0	4.7	104.8
1990	49.6	16.4	2.5	27.2	12.3	1.9	0.8	0.9	4.9	116.7
Ukraine										
Average 1976-80	21.2	1.2	4.4	10.2	1.4	0.5	0.3	NA	2.2	41.5
1981-85	18.1	1.1	6.5	7.6	1.1	0.4	0.3	0.1	2.5	37.9
1986	18.4	1.0	8.0	10.0	1.3	0.5	0.3	0.2	1.8	41.5
1987	19.7	1.4	8.3	12.2	1.7	0.7	0.4	0.2	3.4	48.0
1988	21.7	1.1	8.6	8.8	1.2	0.6	0.3	0.2	2.9	45.4
1989	27.4	1.3	7.0	10.1	1.4	0.4	0.3	0.2	3.1	51.2
1990	30.4	1.3	4.7	9.2	1.3	0.3	0.4	0.1	3.3	51.0
Kazakhstan										
Average 1976-80	17.9	0.1	0.4	5.9	0.5	0.4	0.1	0.5	0.1	25.9
1981-85	12.4	0.2	0.5	5.4	0.4	0.4	0.1	0.6	0.1	20.1
1986	16.7	0.4	0.5	7.1	0.6	0.4	0.1	0.6	0.2	26.6
1987	16.1	0.3	0.5	6.9	0.5	0.5	0.1	0.6	0.1	25.7
1988	12.2	0.5	0.6	5.9	0.3	0.3	0.1	0.6	0.1	21.0
1989	10.8	0.7	0.5	5.3	0.3	0.3	0.1	0.6	0.1	18.8
1990	16.2	0.8	0.4	8.5	0.6	0.6	0.2	0.6	0.2	28.5

NA = Not Available. 1/ Data for 1991 and 1992 are for milled rice. 2/ Totals through 1990 include estimates for other grains not identified. 3/ USDA estimates as of May 11, 1992. 4/ The 1991 and 1992 totals excludes pulses, buckwheat, and other grains not identified. 5/ USDA forecasts as of May 11, 1992.

Sources: *Proizvodstvo i urozhaivnost' sel'skokhozyaistvennykh kul'tur v dvenadtsatoi pyatiletke*, Moscow (1991); *Narodnoe gosподarstvo, Ukrainskoi RSR*, Kiev (1991); *Kratkii statisticheskii ezhegodnik*, Alma Alta (1991).

There is conflicting evidence on exactly how bad the input situation is for the 1992 crop. Reports from the farm level are full of complaints about input shortages, but available information on input supplies by country for the CIS indicate that the situation is not significantly worse than last year. Fertilizer supplies are roughly 10 percent down, while machinery and fuel availabilities appear to be down by less than that. Major production declines in agricultural machinery and spare parts are occurring this year, but this is yet to fully impact farm machinery inventories. Seed stocks for spring grain sowing were sufficient in terms of quantity and, at least in Russia, were of higher quality than they had been in 1991.<sup>105</sup>

Winter grain area will be larger by about 3 million hectares, or 10 percent in 1992, thanks to better sowing conditions in the fall and a relatively mild winter. Winter grains typically yield an additional ton per hectare compared with spring grains. The condition of winter grains this spring was rated as favorable to good.

The structure of spring grain sowing is expected to approximate that of recent years. While price liberalization is now impacting the relative domestic prices of crops, and farm activity will be increasingly guided by profits, both area sown to spring grains and the share of area accounted for by the major spring grains--wheat,

barley, oats, and corn--are expected to be similar to last year. With so few crops now being sold at the farmgate, it will not be until this year's harvest that the shift in relative prices for crops becomes well defined. For this reason, more time will be needed before traditional sowing patterns are significantly altered. Grain remains a basic means of exchange in the countryside, for paying workers and for obtaining necessary supplies. Fuel shortages might force cutbacks in grain sown area in some of the smaller countries of the former USSR. Total 1992 spring grain area in the countries of the former USSR is estimated by USDA at 68 million hectares, down from 70 million in 1991 (both figures exclude rice, pulses, and miscellaneous grains). The reasons for the lower spring grain area are that total arable area will continue to decline, winter grain area is larger, and little area will be diverted from feed or technical crops. Total winter and spring grain area is expected to be equal to or slightly higher than 1991.

In 1991, drought devastated spring grains in wide areas of Kazakhstan and Russia. Kazakhstan recorded the lowest grain yields since the 1975 "drought of the century." Yields in the Urals, Volga Valley, and Siberia were also strongly effected. Because of underlying technical problems, grain yield potential in these countries has fallen in the last two years. Fertilizer applications on grain peaked in 1988 and, compared with this level, will be lower in 1992 in the countries of the former USSR by an estimated 25 percent. This, along with declining availability of plant protection chemicals may explain the disappointing grain yields in the Ukraine and western Russia in 1991. Grain production in the countries of the former USSR in 1992 is forecast by USDA at 178 million tons (cleanweight, not including pulses and miscellaneous grains) with yields at 1.76 tons per hectare. The comparable figures for 1991 are 151.5 million tons and 1.51 tons per hectare.

### ***Grain Supply and Utilization By Republic***

Traditionally, supplies of grain were tightly controlled in the USSR by the central government. Grain sold to the state from state and collective farms (the source of 99 percent of domestic grain procurements) was allocated administratively among the various off-farm users. The largest of these were the milling industry and the state-run mixed feed system. State supplies of grain were also allocated to other industrial uses (e.g., alcohol, syrup, and starch production), to replenish state seed stocks, and in certain years added to state long-term grain stocks. Because domestic grain procurement was consistently below state grain use, foreign imports of grain became a permanent feature of Soviet grain supply management starting in the 1970's (table 33).

The supply and utilization of grain differed (and differs) greatly by each former republic of the USSR. ERS has calculated overall grain balances for 1987/88 by republic based on a variety of Soviet sources and established USDA methodology for USSR grain supply and utilization accounting (table 34). These preliminary data, which are not official USDA data, are presented here as background information.<sup>106</sup>

All republics were net importers of grain in 1987/88, according to these calculations, except Kazakhstan and Ukraine. The Russian Republic alone accounted for two-thirds of total Soviet grain imports. (It should be noted that total net imports of 28 million tons calculated in table 34 differ from the USDA calculations for the USSR of 32 million tons in 1987/88. This is because no attempt has been made here to allocate the USDA-estimated 4 million tons of stock building among republics). The Non-Black Soil Zone, which roughly makes up the northern half of European Russia, accounted for virtually all net grain imports into Russia. Other deficit regions within Russia--Siberia and the Far East--were almost balanced off by surplus producing regions in Russia, most notably the North Caucasus region.

According to these calculations, the Central Asian republics were also large grain importers, taking half as much as Russia. The Baltic region and Byelarus both imported 3 million tons. The republics of the Transcaucasus imported nearly 5 million tons.

The most severely deficit grain regions (in terms of the share of trade in total grain use) were the Transcaucasus and Central Asia, where net grain imports accounted for about three-quarters of total grain use. The Non-Black Soil Zone of Russia depended on imports for about half of its

Table 33--Grain procurements and imports, former USSR

Year	Procurements	Imports	Total
Million metric tons			
1976-80 average	77.7	22.3	100.0
1981	58.1	47.3	105.4
1982	69.7	34.3	104.0
1983	75.6	32.5	108.1
1984	56.3	55.5	111.8
1985	73.5	29.9	103.4
1986	78.8	27.5	106.3
1987	73.3	32.0	105.3
1988	61.5	39.0	100.5
1989	59.0	39.5	98.5
1990	67.8	26.7	92.3
1991 1/	40.7	2/ 38.3	78.5

1/ Includes Georgia and the Baltics. 2/ Forecast. Sources: Procurements are from Narodnoe khozyaistvo, SSSR, various issues and Goskomstat Press Release No. 368. Imports are USDA July-June estimates.



Table 34--Estimated grain supply and use by republic, 1987/88

Republic	Bunkerweight production	Dockage and waste	Dockage and waste	Usable grain	Seed	Food	Industrial	Feed	Total grain use	Net grain trade	Trade share of total use
	1,000 metric tons		Percent						1,000 metric tons		Percent
Russia	109,048	16,684	15.3	92,364	16,048	21,864	2,688	69,827	110,427	-18,063	-16.4
NBSZ	24,677	5,108	20.7	19,569	3,773	9,426	1,159	22,373	36,731	-17,162	-46.7
Ukraine	50,184	5,069	10.1	45,115	3,382	9,087	947	28,252	41,668	3,448	8.3
Byelarus	9,281	2,014	21.7	7,267	782	1,672	186	7,737	10,377	-3,110	-30.0
Kazakhstan	27,444	3,321	12.1	24,123	4,361	2,883	300	8,167	15,711	8,412	53.5
Moldova	2,011	175	8.7	1,836	127	931	77	2,259	3,394	-1,558	-45.9
Lithuania	3,554	657	18.5	2,897	325	520	67	3,166	4,078	-1,181	-29.0
Latvia	2,086	563	27	1,523	189	364	49	1,954	2,556	-1,033	-40.4
Estonia	1,257	377	30	880	98	174	29	1,424	1,725	-845	-49.0
Baltics	6,897	1,597	23.2	5,300	612	1,058	145	6,544	8,359	-3,059	-36.6
Georgia	664	102	15.3	562	67	1,246	97	1,008	2,418	-1,856	-76.8
Armenia	274	33	12	241	52	575	63	766	1,456	-1,215	-83.4
Azerbaijan	1,119	112	10	1,007	122	1,358	126	1,297	2,903	-1,896	-65.3
Transcaucasus	2,057	247	12.0	1,810	241	3,179	286	3,071	6,777	-4,967	-73.3
Uzbekistan	1,822	226	12.4	1,596	239	4,086	352	2,191	6,868	-5,272	-76.8
Kyrgyzstan	1,909	229	12	1,680	136	741	77	1,860	2,814	-1,134	-40.3
Tajikistan	359	50	14	309	66	1,051	89	608	1,814	-1,505	-83.0
Turkmenistan	353	49	14	304	42	705	62	642	1,451	-1,147	-79.1
Central Asia	4,443	554	12.5	3,889	483	6,583	580	5,301	12,947	-9,058	-70.0
Total	211,365	29,661	14.0	181,704	26,036	47,257	5,209	131,157	209,659	-27,955	-13.3

Sources: ERS estimates based on Soviet data in *Narodnoe khozyaistvo SSSR*, various years, *Nalichie i raskhod kormov v 1987 godu*, Goskomstat, Moscow, 1988, *Potreblenie naseleniem produktov pitaniya za 1989 god*, Goskomstat, Moscow, 1990, and USDA methodology for USSR grain supply and utilization accounting.

total grain use. In the Baltics and Byelarus this share was close to one-third. By far the strongest of the two exporting republics was Kazakhstan, where exports were over 50 percent of domestic grain use.

The grain supply and utilization positions of the republics were different in 1991/92. An estimation of their respective net grain requirements in that year is presented in table 35. Assuming grain utilization in 1991/92 equal to that calculated for 1987/88, net grain imports into the countries of the former USSR (exclusive of stock drawdowns) would have reached 56 million tons. This compares with actual imports in 1991/92 of 38 million tons and estimated stock drawdowns of 8 million tons. The brunt of the shortfall has been felt in the feed-livestock sector, as the non-feed uses of grain have been maintained (table 36). In 1991/92, not a single country in the region was a net exporter of grain. To maintain utilization at the level of 1987/88 with no change in stocks, Ukraine would have had to import 5 million tons and Kazakhstan 4 million tons. By this measure, Russian grain imports needed to reach nearly 26 million tons. The import needs of the other republics were little changed from 1987/88, except for Moldova.

Information from the former Soviet Union generally confirms the calculations presented in table 34. The

Table 35--Estimated grain production, usable grain, and implied net trade requirements by republic, 1991/92

Republic	1991 clean- weight	Estimated usable grain	1987/88 grain use	Implied net 1991/92 grain requirements
			1,000 metric tons	
Russia	89,061	84,608	110,427	-25,819
NBSZ	17,504	16,629	36,731	-20,102
Ukraine	38,620	36,689	41,668	-4,979
Byelarus	6,300	5,985	10,377	-4,392
Kazakhstan	11,931	11,347	15,711	-4,377
Moldova	3,204	3,044	3,394	-351
Lithuania	3,230	3,153	4,078	-925
Latvia	1,850	1,651	2,556	-905
Estonia	1,120	965	1,725	-760
Baltics	6,200	5,766	8,359	-2,593
Georgia	538	511	2,418	-1,907
Armenia	306	291	1,456	-1,165
Azerbaijan	1,303	1,238	2,903	-1,665
Transcaucasus	2,147	2,040	6,777	-4,737
Uzbekistan	1,879	1,785	6,868	-5,083
Kyrgyzstan	1,361	1,293	2,814	-1,521
Tajikistan	283	269	1,814	-1,545
Turkmenistan	471	447	1,451	-1,004
Central Asia	3,994	3,794	12,947	-9,153
Total	161,457	153,263	209,659	-56,396

Table 36--Supply and use of grain, former USSR 1/

Year beginning July 1	Produc- tion 2/	Trade		Avail- ability	Utilization						Stock change 3/
		Imports	Exports		Seed	Indus- trial	Food	Dockage- waste	Feed	Total	
Million metric tons											
Total grains 4/											
Averages											
1976/77-80/81	205.0	22.3	2.0	225	26	6	46	28	121	225	0
1981/82-85/86	180.3	39.9	0.5	220	25	5	47	19	121	216	4
1986/87	210.1	27.5	0.5	237	25	5	47	23	130	230	7
1987/88	211.4	32.0	0.5	243	25	5	47	30	132	239	4
1988/89	195.1	39.0	0.5	234	25	5	48	22	135	235	-1
1989/90	210.9	39.5	0.5	250	25	5	48	29	139	246	4
1990/91	235.0	26.7	0.5	261	25	5	48	36	143	257	4
1991/92	175.0	38.3	0.5	212	25	5	47	20	125	222	-10
Wheat											
Averages											
1976/77-80/81	99.7	8.9	1.0	108	13	2	35	14	43	107	1
1981/82-85/86	77.9	21.0	0.5	99	11	2	36	8	39	96	3
1986/87	92.3	16.0	0.5	108	11	1	36	10	45	103	5
1987/88	83.3	21.5	0.5	104	11	1	36	13	40	101	3
1988/89	84.4	15.5	0.5	99	11	1	37	10	41	100	-1
1989/90	92.3	14.6	0.5	106	11	1	37	13	41	103	3
1990/91	108.0	14.8	0.5	122	11	1	37	17	53	119	3
1991/92	78.0	21.0	0.5	98	11	1	36	8	50	105	-7
Coarse grains 5/											
Averages											
1976/77-80/81	94.9	12.8	1.0	107	11	4	7	13	73	108	-1
1981/82-85/86	90.7	18.0	0	109	13	3	7	9	76	108	1
1986/87	105.9	11.0	0	117	13	4	7	11	80	115	2
1987/88	113.7	10.0	0	124	13	4	7	15	84	123	1
1988/89	97.5	23.0	0	121	13	4	7	11	86	121	0
1989/90	104.8	23.9	0	129	13	4	7	14	90	128	1
1990/91	113.3	11.4	0	124	13	4	7	17	82	123	1
1991/92	85.5	16.5	0	102	13	4	7	10	71	105	-3

1/ All are USDA estimates and forecasts except production through 1989/90. Rounded to the nearest million tons, except for production and trade data. Totals may not add because of rounding. 2/ Calendar year basis, bunkerweight. 3/ Difference between availability and total use. 4/ Includes wheat, coarse grains, buckwheat, rice, pulses, and miscellaneous grains. 5/ Includes rye, barley, oats, corn, sorghum, and millet.

former Russian State Agro-Industrial Committee provided the following data for grain use in that republic for the years 1986-89: feed use, 75 million tons; seed use, 21 million tons; food use, 22 million tons; industrial use, 3 million tons; and grain imports, 21-22 million tons.<sup>107</sup> Data on calendar year trade in grain is presented in table 37. The data for 1985 and 1988 were derived from grain self-sufficiency figures published in the professional journal *Ekonomist*.<sup>108</sup> The figures for 1989 are official Soviet data from the USSR State Statistical Committee.

These data are generally consistent with the calculated 1987/88 net trade by republic. The Baltics, the Transcaucasus, and Central Asia are all net importers, but the latter two (particularly Central Asia) are not as large as calculated by ERS. The Russian Republic shows up as

a net importer of about 20 million tons. While Kazakhstan and Ukraine are net exporters in 1988 and 1989, they export less than estimated in table 34.

What is particularly interesting about the 1989 data is the limited size of gross grain exports at the republic level. In 1989 only 9.2 million tons of grain moved out of producing republics, or just 4.7 percent of domestic cleanweight production. Though 1989 was a below average production year in Kazakhstan, the largest grain exporter, the 1989 data indicate the very limited extent to which domestic grain supplies moved across republic boundaries prior to the manifestation of the economic crisis and the breakup of the USSR. Foreign imports were far and away the most important channel for supporting grain utilization in deficit areas.



Table 37--Net grain trade, former USSR republics

Republic	1985	1988	1989 1/		
	net exports	net exports	net exports	gross imports	gross exports
---Million metric tons---					
				1,000 metric tons	
Russia	-18.81	-21.06	-20.38	21,544.1	1,161.9
Ukraine	-7.71	0.47	0.85	4,180.3	5,028.9
Byelarus	-2.76	-3.11	-3.34	3,376.4	33.8
Moldova	-1.06	-0.51	-0.69	746.3	60.3
Kazakhstan	2.59	4.94	2.35	585.6	2,935.2
Uzbekistan	-3.59	-3.75	-3.85	3,865.7	12.1
Kyrgyzstan	-1.31	-0.91	-1.05	1,056.2	2.8
Tajikistan	-1.05	-1.14	-1.39	1,385.9	--
Turkmenistan	-0.82	-0.72	-0.74	742.2	--
Armenia	-1.12	-1.05	-0.85	849.6	--
Azerbaijan	-1.15	-1.88	-1.35	1,348.6	0.2
Georgia	-1.36	-1.26	-1.72	1,721.6	--
Lithuania	-1.29	-1.02	-1.37	1,380.7	10.8
Latvia	-0.51	-0.66	-1.25	1,256.0	1.1
Estonia	-0.89	-1.20	-1.09	1,093.3	--
Total	-40.9	-33.4	-35.89	45,132.5	9,247.1
Baltics	-2.7	-2.9	-3.72	3,730.0	11.9
Caucasus	-3.6	-4.2	-3.92	3,919.8	80.2
Central Asia	-6.8	-6.5	-7.04	7,050.0	14.9

1/ Includes flour, groats, and concentrated feed. Gross exports exclude foreign trade.

Sources: *Ekonomist*, No. 6 (1991), p. 105; Goskomstat USSR.

### Changes in Internal Grain Marketing

The breakdown in the traditional state trading system for grain is evident in the dismally low total for grain procurements in 1991. Sales of grain to state agencies in the countries of the former USSR reached just 40 million tons for the 1991 harvest, or a mere 25 percent of cleanweight grain production in the region. As recently as 1986, procurements were nearly 80 million tons, representing 41 percent of domestic grain production that year. Historical data on grain procurement by types for the former USSR, Russian, Ukraine, and Kazakhstan is presented in table 38.

Under the old system, farms had only one grain marketing option--the state procurement network. The only real alternative was to retain grain for feeding and market livestock products. Prices were administratively set by the State and all grading was carried out at state procurement points. While farms were largely denied sovereignty over the disposition of their crop, their interest in participating in this system was maintained because the state controlled--and until recently, heavily subsidized--prices for inputs. In cases where the "terms of trade" (the relationship between prices farms receive for their output and the

prices they pay for their inputs) were not favorable enough to guarantee farm profitability, various means were used to bail out failing farms and keep them in operation. Farms, therefore, were passive in how they interacted with other sectors of the economy. They accepted guaranteed state support as a reward for this passivity.

The initial moves toward a market economy have severely disrupted this traditional arrangement. First, the continued decline in production of inputs means that farms are faced with declining and more uncertain resource flows from the state. Second, prices for inputs are no longer subsidized, or controlled in a significant way. This is an important factor behind the recent deterioration in the terms of trade faced by farms. The State is no longer in the position of guaranteeing financial viability or generally of providing incentives that would incline farms to sacrifice control over the marketing of their grain.

In the new environment, the State can no longer dictate grain pricing and marketing conditions. However, all countries in the region are demonstrating reluctance to radically reduce the role of the State in this area. In January, the Russian Government abandoned state-set procurement prices for grain. Beginning with this year, the State will pay farms a market price for grain. However, marketing quotas will continue. Grain sales targets have been established at up to 35 percent of average annual production in 1986-90. This is large enough to fully account for recent grain sales quantities in the Russia. For example, the quota for grain sales to the State in Russia this year is 29 million tons, compared with actual grain sales last year of 22 million tons. Under these circumstances, it is hard to see how alternative marketing channels will develop, or how a true "market price" will be determined.

For normalization of grain marketing in the countries of the former USSR, freely negotiated prices, stabilization of the macroeconomic situation, and open trading among countries of the region are essential. While these conditions may be slow in coming about, farms will continue to move away from traditional dependence on the state. Construction of on-farm grain storage, a chronic weak link in Soviet agriculture, is likely to expand, and recently established farm-to-enterprise barter arrangements will continue to develop.

The inevitable movement toward a market pricing system will bring with it much greater differentiation of price with respect to grain quality. The lack of seasonal variations in grain prices will be abandoned. While the nascent market signals did not have much impact on grain sowing patterns in 1992, potentially large changes are possible in the next few years. These changes will be stronger to the extent

Table 38--Procurement of grain, by type, former USSR, Russia, Ukraine, Kazakhstan

Area	Wheat	Rye	Corn	Barley	Oats	Millet	Buckwheat	Rice	Pulses	Other	Total
Million metric tons											
Former USSR											
Average											
1976-80	47.9	3.6	2.2	15.3	2.8	1.1	0.4	1.6	1.0	1.8	77.7
1981-85	33.7	6.0	3.9	12.4	3.6	1.3	0.4	1.8	0.9	2.6	66.6
1986	43.8	6.1	3.3	14.1	4.5	1.2	0.4	1.9	0.8	2.7	78.8
1987	35.2	7.2	4.0	15.3	2.7	2.1	0.6	1.9	1.5	2.8	73.3
1988	35.0	6.3	4.3	8.0	1.8	1.6	0.4	2.1	1.0	1.0	61.5
1989	34.1	6.4	3.2	6.6	1.6	2.2	0.5	1.7	1.1	1.7	59.1
1990	40.8	9.3	1.7	8.9	1.6	1.9	0.5	1.6	1.2	0.5	68.0
Russia											
Average											
1976-80	24.5	2.5	0.8	9.0	2.3	0.6	0.2	0.8	0.6	1.1	42.4
1981-85	16.6	4.3	1.0	6.4	3.0	0.8	0.2	0.8	0.4	1.5	35.0
1986	22.6	4.5	0.5	7.3	4.0	0.7	0.2	0.9	0.6	0.8	42.1
1987	15.1	5.1	1.4	7.0	2.1	1.3	0.3	0.8	0.6	1.4	35.1
1988	16.3	4.5	1.2	3.1	1.4	0.8	0.2	0.9	0.4	0.4	29.2
1989	17.4	4.4	1.2	3.1	1.4	1.8	0.3	0.7	0.5	0.4	31.2
1990	18.4	7.2	0.5	3.8	1.2	1.1	0.3	0.6	0.6	0.3	34.0
Ukraine											
Average											
1976-80	9.0	0.2	0.4	2.7	0.2	0.2	0.1	0.1	0.4	0.7	14.0
1981-85	7.5	0.3	1.7	1.9	0.2	0.3	0.2	0.1	0.4	0.8	13.4
1986	8.2	0.2	1.7	2.4	0.2	0.3	0.1	0.2	0.2	1.7	15.2
1987	8.2	0.4	1.9	4.4	0.4	0.4	0.2	0.1	0.8	1.3	18.1
1988	10.5	0.3	2.2	2.3	0.3	0.4	0.1	0.1	0.6	0.5	17.3
1989	11.8	0.4	1.3	1.9	0.2	0.2	0.2	0.1	0.6	1.0	17.7
1990	11.5	0.4	0.7	1.6	0.2	0.2	0.2	0.1	0.6	--	15.4
Kazakhstan											
Average											
1976-80	12.7	0.1	0.3	2.4	0.1	0.3	--	0.4	--	--	16.3
1981-85	8.1	0.1	0.4	2.9	0.2	0.3	--	0.5	--	0.1	12.6
1986	11.7	0.2	0.4	3.2	0.2	0.3	--	0.5	--	0.2	16.7
1987	10.5	0.1	0.3	2.6	0.1	0.4	--	0.5	--	0.1	14.6
1988	6.5	0.3	0.3	1.6	0.0	0.4	0.1	0.5	--	0.1	9.8
1989	3.7	0.4	0.1	1.0	--	0.2	--	0.5	--	--	5.9
1990	9.8	0.5	0.2	2.9	0.1	0.6	0.1	0.5	--	0.1	14.8

-- = None or negligible.

Sources: Narodnoe khozyaistvo, SSSR (1990 and 1991); Narodnoe khozyaistvo, RSFSR (1991); Narodnoe gospodarstvo Ukrainskoi RSR, Kiev (1991); Narodnoe khozyaistvo Kazakhstana v 1988 godu, Kratkii statisticheskii ezhegodnik, Alma Alta (1991).

that trade relations among these countries are free. Two changes to look for as a result of jettisoning the old marketing system are an increase in procurement of milling quality wheat and a greater use of protein meal relative to coarse grains. Under the old pricing and marketing system, relative prices for quality wheat were too low. Roughly 8-10 million tons of milling quality wheat were fed each year. In addition, another 30-40 million tons of lower quality wheat were fed. With appropriate incentives, some of this latter wheat could be brought up to higher quality standards. The extremely inefficient state mixed-feed industry had the perverse incentive of utilizing coarse grains rather than protein meal

in feed formulation, despite a severe lack of protein in feed rations.

### *Changes in Grain Utilization*

The countries of the former USSR are now undergoing an historic shift in grain utilization, similar to that experienced by the countries of Central and Eastern Europe in the last two years. Shifts in domestic relative prices and subsidy support are first and foremost having an impact on use of grain for feeding. For decades, Soviet livestock rations were deficient in protein, with the



result that tremendous amounts of grain for feeding were wasted. With the adoption of a more rational economic framework, this situation will change. Domestic demand for livestock products--especially meat--is falling and will likely continue to fall, with the result that markets for livestock products should settle below current consumption levels (see livestock section).

Food, seed, and industrial uses of grain are likely to remain fairly stable in the next few years. Actual human consumption of bread and grain products is increasing, but will be counterbalanced by elimination of 4-5 million tons of bread feeding to animals that was one of the perverse effects of the old pricing system. Improvements in seed quality could result in reduced seeding rates, but dramatic changes are not anticipated in the short to medium term.

Adoption of flexible market prices will mean that shifts in domestic grain availability will more directly influence grain utilization. In the past, the State largely guaranteed that production shortfalls would be compensated by larger grain imports. Domestic users faced fixed state prices for grain and therefore had no economic incentive to curtail their demand in the face of a domestic production shortfall. With the elimination of tacit state guarantees about grain supplies, stockholding behavior throughout the system is changing. The trend will be toward greater stockholding from farm to market (and particularly at the farm level). The supply contraction resulting from the disappointing 1991 crop has temporarily reversed this direction. Whether the trend to stockholding results in net stockbuilding for the region as a whole depends on the size of strategic government reserves in the former USSR and the extent to which they might now be opened up for domestic use.

Grain waste rates in the countries of the former Soviet Union are generally high. But figures as high as 25 percent include field losses and losses associated with excess moisture and trash in the grain brought from the fields. (There is even reason to believe that some Soviet statements included biological losses, that is, yield losses due to harvesting before or after optimal dates.) The possibility of reducing waste rates is real. But at the farm level, this depends on effective restructuring of farms to provide the necessary incentives, and on increased investment in farm machinery, storage, and cleaning capacity. For downstream losses as well, infrastructure improvements and assignment of property rights--so that there is identifiable ownership of the grain at various steps in the marketing chain--is essential for reducing waste. These changes will be gradual and require time.

The general thrust of the changes now underway is to reduce domestic grain utilization by the countries in this

region. One indication of the extent to which domestic grain use is inflated is that per capita grain utilization in the countries of the former USSR exceeds that of the European Community.

### *Changes in Foreign Trade Patterns*

The breakup of the Soviet Union and the worsening hard-currency payments situation of the successor states are changing the grain trade environment for this region. While credit packages are extended by major exporters, the ability of these countries to independently finance grain imports is already having a bearing on trade flows. There are some apparent problems in the internal CIS agreement to distribute agricultural commodities among member states. Under that arrangement, Russia has taken the lead in arranging financing terms for the CIS as a whole. Various CIS countries are now pursuing independent grain import channels directly with exporting countries. The Ukraine in particular is intent on complete independence in grain trade.

Both Kazakhstan and Ukraine could seek to develop grain exports beyond the former USSR. Following a bumper 1990 harvest, Kazakhstan exported 8 million tons of grain in 1990/91. Whether Kazakh grain exports remain so preponderantly within the former USSR or expand to new markets, they will be carried out at world market prices either on a bilateral trade basis or for hard currency. With an average harvest in 1992, Kazakhstan could be in a position to export as much as 5-7 million tons, which would be mostly milling quality wheat. Ukraine might be in position to export a few million tons, but until improvements are made in cultivation practices and varieties, Ukraine will not have large surpluses of milling quality wheat for export. If favorable export opportunities do not exist, grain production in Kazakhstan and Ukraine could be reduced. The more likely scenario, however, is that these countries will need to sell or barter grain with Russia for energy and raw material supplies.

Because of its relatively strong hard-currency position, Russian grain imports are the least threatened by the changed environment. The same can not be said for the remaining 12 countries of the former USSR that are traditional grain importers. Together, they have taken roughly 18-20 million tons annually in recent years. The Baltic countries have already encountered serious problems maintaining grain and feed imports. To the extent an umbrella CIS arrangement with Russia on agricultural commodities erodes, the countries of Central Asia, the Transcaucasus, Moldova, and Byelarus will be faced with significant adjustments in grain trade.

Trends in foreign trade positions indicate a decline in grain imports into the former USSR in the next few years. Research carried out in ERS on the effects of market reform and trade liberalization on production, consumption, and use of agricultural commodities in the former USSR indicated that in the longer run the region could become a net exporter of wheat once market reforms have had time to fully take effect. Implications for coarse grain trade were not as clear cut.<sup>109</sup> Until changes in internal pricing and marketing are effected, however, priority will continue to be given to wheat imports.

The shift to a market system by these countries will also mean a weaker connection between domestic grain production and grain imports as domestic users become more price responsive. Stockholding responsibilities will also be increasingly assumed by domestic users in these countries.

### ***1992/93 Grain Trade Prospects***

Due to an expected modest rebound in grain production in 1992 and reductions in domestic grain use, imports are projected at 27 million tons for 1992/93 (July-June year), compared with 26.7 million in 1990/91 and 38 million in 1991/92.

Heavy debt-servicing constraints due to debt run up by capital goods imports will make grain purchases even more difficult in 1992/93. As in recent years, the countries of the former Soviet Union will have to rely on credit programs and other financial assistance from other nations to import grain. However, additional credit is being linked to repayment of foreign debt amassed by the former Soviet Union. This issue is further complicated by the allocation of this debt (as well as the hard currency to service it) amongst the successor states.

While the breakup of the Soviet Union has decentralized trade decisions and negotiations, Eksportkhleb continues to act as importing agent for nearly all grain into the CIS, except for Ukraine. However, a more competitive structure is expected to evolve in the next few years. Already organizations have "spun off" of Eksportkhleb, such as Khleb Rossii, a Russian commercial trading firm. Vneshekonombank, working under the authority of the Russian Central Bank, will continue to be the creditor for grain transactions of the former USSR. In addition, ten of the nations of the CIS (Ukraine declined) and Georgia have signed a protocol to maintain centralized purchases of food and other materials from abroad in 1992. It was agreed to transfer hard currency to accounts with Eksportkhleb in order to remain current on interest payments. Further, there are indications that other CIS

countries are interested in arranging deals directly with exporting countries.

USDA projects wheat imports for 1992/93 at 14 million tons, compared to 21 million in 1991/92. A combination of milling quality and feed wheat will be purchased, determined by domestic needs, world prices, and credit packages. Coarse grain imports are projected by USDA at 12 million tons for 1992/93, while 1991/92 imports were around 16.5 million tons. It is expected that corn imports will decrease, while barley purchases will remain unchanged from 1991/92 levels.

Credit and food aid packages will remain vital in determining the sources for grain purchases in 1992/93. During FY 1991 and 1992 the United States has announced \$4.85 billion in agricultural guarantees to the former Soviet Union, much of which has been used. As of April 13, 1992, approximately 8 million tons of U.S. wheat and flour and 12.6 million tons of U.S. feed grains were purchased during CY 1991 and 1992.<sup>110</sup> The United States has provided around one third of the wheat and over half of the coarse grains purchased by this region. Most imports were purchased with GSM-102 credit, which carries full government guarantee of the principal and part of the interest. Additionally, the Export Enhancement Program covered all U.S. wheat sales to the former USSR during 1991 and to date in 1992. At the end of 1991, five EEP invitations were reissued to establish the eligibility of the nations of the CIS and Georgia to purchase commodities under these programs. Wheat invitations were opened to any eligible buyer in these countries, while in the past only Eksportkhleb could make such purchases. The other three commodity invitations, rice, wheat flour, and barley, are also open to any eligible buyer in these countries.

The second largest grain exporter to the former USSR is the European Community (EC), which supplies around 20 percent of all wheat and coarse grain. In 1990 the EC announced a ECU500 million (\$721 million) credit package for the former Soviet Union. The credit was held up due to political events (armed intervention in the Baltics and after the failed coup attempt) as well as administrative problems, including delays in finding a financial underwriter.

In February 1992, EC finance ministers decided to extend the credits to Russia alone, due to difficulties in securing payment guarantees from the other republics. The bank consortium providing the loan will retain 20 to 25 percent of the sum. One report indicates that food purchases made with this credit will be distributed to all of the republics, except Ukraine, by Eksportkhleb and other foreign trade organizations, as stipulated in the protocol on



food distribution. Details are being worked out for an additional credit package of ECU1.25 billion (\$1.8 billion) which was first announced in October 1991. Most likely this loan will also be distributed among the CIS members, with Russia receiving between 40 to 50 percent of the total.<sup>111</sup>

The EC loans contain an allocation for the purchase of grain from East European countries. According to one EC official, it is expected that most purchases will continue to be of EC and not East European grain. However, the ECU1.25 billion package requires that half of the food supplies will come from Central Eastern Europe, which could present complications if the CIS countries want to purchase only EC grain.<sup>112</sup>

Two major EC exporters are France and Germany. France reportedly signed a 2 billion franc (\$358 million) export credit agreement with Russia, which would include close to 2 million tons of wheat and over a half million tons of barley. In 1990-91, France exported over 3 million tons of wheat and 1.8 million tons of barley to the former USSR, representing a market share of 20 percent of wheat and close to half of all barley purchased by the former USSR during that time period. In recent years, French coarse grain exports have accounted for most of the EC coarse grain exports to the former USSR. Germany, which has increased its share of total EC sales, announced credit to cover grain purchases from former East Germany of 500,000 tons of wheat, 125,000 tons of flour, and 1 million tons of barley. Both countries have started to set up barter deals involving grain for oil.

Other significant exporters offering credit to the former USSR include Canada and Turkey. Canada normally exports around 4-6 million tons of grain, of which 3-5 million is wheat. Recently Canada completed a deal to sell 4 million tons of grain, consisting of barley, spring and durum wheat, under a US\$500 million credit program. Despite significant delays in delivery and earlier reports that Russia would not enter into another long-term agreement with Canada, the two countries signed a new long-term agreement in January calling for the sale of 25 million tons of Canadian grain to Russia over the next 5 years. Turkey, through the Turkish ExIm Bank, reportedly has arranged the sale of \$218 million of wheat, barley, flour, and pasta. Given its proximity and close ties to the former Soviet Union, Turkey could greatly increase grain exports to this region, partly through the use of barter deals for raw materials.

The former Soviet Union has also purchased grain from East Europe, largely through barter deals for oil. For example, in June 1991 Hungary signed an agreement with Russia to send 500,000 tons of wheat and other goods

(worth US\$670 million) in exchange for crude oil and other raw materials. Czechoslovakia signed a similar agreement with Russia, and Yugoslavia has delivered 50,000 tons of wheat to Uzbekistan in exchange for cotton. Other countries are also looking to barter deals with the former USSR. China has a \$800 million barter arrangement to supply corn, soybeans, and meal (and other goods) in exchange for raw materials and machinery. In recent years, China has shipped 1 to 1.5 million tons of corn a year to the USSR.

The 1992/93 grain trade outlook will be good for exporters able to obtain credits for purchases by the countries of the former USSR. However, this kind of trade will not be viable in the long-run, given dwindling hard currency reserves and debt servicing constraints. As noted above, market reforms currently being implemented in the former Soviet Union will cut feed demand, stimulate domestic production and increase inter-regional trade. As market mechanisms more rationally determine domestic grain production and consumption, imports will begin to decline and some areas could begin to export. (Edward C. Cook and Sharon S. Sheffield)

### **Contraction of the Livestock Sector Will Continue**

Livestock production in the countries of the former USSR will decline for the third straight year in 1992. Current circumstances point to continuation of this trend into 1993. Output of livestock products is expected to decline by 5-10 percent in 1992, compared with a 7 percent decline in 1991 (table 39). All 15 former republics will be affected, with the largest declines likely in the Baltics, Transcaucasus, and Central Asia where declines in feed supplies are largest. Inventory drawdowns, which averaged a little more than 3 percent in 1991 in terms of standard animal units (table 40), will likely be larger this year barring a very favorable grain and feed harvest this summer and fall.

An unusually large decline in feed supplies in 1991/92 is the most immediate factor behind continued reductions in the livestock sector. Grain feeding is estimated to have declined by over 10 percent in 1991/92 compared with 1990/91, and there were also declines in roughage feed availability (table 41).

While current feed constraints are an important problem, the underlying reasons for the longer-run downward trend in livestock output in the former USSR are economic. Powerful forces at work on both the supply and demand sides point to eventual stabilization of livestock product markets at even lower levels of production and

Table 39--Production of principal livestock products, former USSR

Year	Meat 1/						Milk	Wool 2/	Eggs
	Total	Beef and veal	Pork	Mutton, lamb, and goat	Poultry	Other			
1,000 metric tons									
1966-70 average	11,583	5,187	4,327	992	853	224	80,553	NA	35,840
1971-75 average	14,004	5,985	5,394	972	1,335	318	87,446	425	51,427
1976-80 average 3/	14,843	6,827	5,009	882	1,835	290	92,662	442	63,133
1981-85 average	16,226	6,973	5,606	838	2,555	252	94,579	457	74,422
1986	18,057	7,840	6,065	894	2,988	270	102,173	469	80,746
1987	18,895	8,288	6,324	905	3,126	252	103,774	461	82,737
1988	19,680	8,616	6,595	960	3,235	274	106,754	478	85,150
1989	20,137	8,800	6,700	1,000	3,400	237	108,529	479	84,854
1990	20,011	8,814	6,646	1,008	3,286	257	108,384	475	81,725
1991 4/	18,615	8,160	6,150	965	3,090	250	101,662	455	79,225

NA = Not available.

1/ Carcass weight, including fat. 2/ Physical weight. 3/ Revision based on the average published in Narodnoe khozyaistvo SSSR v 1982. Is not consistent with average derived from last published figures for each year.

4/ Preliminary.

Table 40--January 1 livestock numbers and animal units, former USSR

Year	Cattle		Hogs	Sheep	Goats	Horses	Poultry	Total animal units 1/
	Total	Cows						
Million head								
1971	99.2	39.8	67.5	138.0	5.4	7.4	652.7	130.5
1976	111.0	41.9	57.9	141.4	5.7	6.4	734.4	136.5
1981	115.1	43.4	73.4	141.6	5.9	5.6	1,032.4	149.4
1986	120.9	42.9	77.8	140.8	6.5	5.8	1,165.5	156.9
1987	122.1	42.4	79.5	142.2	6.5	5.9	1,174.0	158.3
1988	120.6	42.0	77.4	140.8	6.5	5.9	1,175.0	156.5
1989	119.6	41.8	78.1	140.8	6.6	5.9	1,199.5	156.6
1990	118.4	41.7	79.0	138.4	7.0	5.9	1,213.9	156.1
1991	115.7	41.5	75.6	133.3	7.0	5.9	1,206.1	152.8
1992	112.4	41.0	71.2	2/ 128.0	2/ 6.8	2/ 5.9	2/ 1,190.0	148.4

1/ In terms of cows. Conversion ratios as follows: Cattle (other than cows) 0.6; hogs 0.3; sheep and goats 0.1; horses 1.0; and poultry 0.02. 2/ Estimate.

consumption. The counties of East Central Europe have experienced such restructuring in their livestock sectors since 1990, primarily due to contraction of effective demand following elimination of sizeable retail price subsidies. The elimination of differential price subsidies for high-cost livestock producers at the beginning of 1991 led many farms to reduce their livestock operations. Since the elimination of these special subsidies, profitability for both efficient and inefficient producers has declined further due to rapidly rising prices that farms must pay for inputs.

Farms have attempted to pass on to consumers the higher costs that resulted from liberalization of prices in January.

During the 1970's and 1980's, the quantity of meat demanded in the USSR increasingly exceeded the quantity supplied as expanding government subsidies maintained stable retail prices. However, with the slashing of retail price subsidies for foodstuffs, a general realignment of domestic relative prices, and declining real incomes, demand for meat has fallen drastically. In the face of lower demand, producers may cut livestock production further in 1993. Recently, the Government of Russia has chosen to increase support to livestock producers, by reinstituting producer price subsidies. This will cushion the impacts on producers of the January price liberalization.



Table 41--Feed supplies by type in oat-unit equivalent, January 1 standard animal units, and feed per standard animal unit, former USSR 1/

Unit	1988/89	1989/90	1990/91	1991/92 1/
Million metric tons				
Total feed	459.7	469.9	466.9	425.6
Coarse 2/	99.9	99.8	98.9	89.8
Pasture	61.2	59.5	61.2	59.5
Succulents 3/	108.1	116.1	109.0	100.2
Concentrates 4/	190.5	194.5	197.8	176.2
Million units				
January 1 total animal units 5/	156.6	156.1	152.8	148.4
Tons				
Feed per standard animal unit	2.93	3.01	3.06	2.87

1/ Totals may not add because of rounding. Preliminary for 1990/91. 2/ Includes hay, haylage, and straw. 3/ Includes silage, green chop, potatoes, feed roots, melons, and beet pulp. 4/ Includes grain, millfeeds, oilmeal, fish and animal meal, grass meal, feed yeasts, and whole and skim milk. 5/ In terms of cows. Conversion ratios as follows: Cattle (other than cows) 0.6; hogs 0.3; total sheep and goats 0.1; horses 1.0; and poultry 0.02.

### Trade Prospects

Credit packages, barter deals, and humanitarian aid programs now account for virtually all livestock product imports into the former USSR, and this situation will continue into 1993. In 1992, meat imports may match the 1991 figure of 1.0-1.1 million tons, as trade on concessional terms continues. However, early in the year it became apparent that price liberalization had eliminated traditional excess demand for meat in Russia. The logic of attempting to maintain meat imports in this new economic situation likely will be questioned as the year progresses. Russia in recent years has accounted for over three-quarters of meat imports into the USSR.

Increasingly, meat imports are financed with the use of credit guarantees from Western governments. U.S. exports of meat declined from 138,000 tons in 1990 to 87,000 tons in 1991. Virtually all of this trade was poultry meat. Recent allocations of GSM-102 credit guarantees do not indicate an increase in U.S. meat exports to the former USSR in 1992, though the possibility of bartering as much as 240,000 tons of poultry for oil has been raised.

Imports of meat from traditional suppliers in Eastern Europe declined significantly in 1991, but with appropriate financing arrangements, this trade could rebound somewhat in 1992. Hungary, which accounted for 30

percent of Soviet meat imports in 1990, accounted for just 10 percent in 1991. Trade of livestock products from Eastern Europe into the countries of the former USSR is occurring on a barter basis. The EC is in the process of working out a 1.25 billion ECU credit package which will allow for agricultural imports from Eastern Europe. Thus far, no livestock products have been traded on this basis.

In recent years, China shipped roughly 130,000 tons of meat annually to the USSR, but in 1991 reportedly accounted for nearly 200,000 tons.<sup>113</sup> Imports of butter, which fell in 1991 by 25 percent to 225,000 tons, are expected to be the same or slightly lower in 1992.

### Feed Problems Severe

Total feed supplies are estimated to have declined by 9 percent in 1991/92 in the countries that make up the former USSR (table 42). This represents the largest year-on-year fall in 16 years. Declines in grain for feeding were particularly large--nearly 13 percent. Feeding in the private sector probably increased, thanks to increased use of payment in kind of grain and feed to collective and state farm workers. Overall, feed availability in the former USSR is comparable to what it was in 1984/85. In 1985, livestock output was 10 percent lower than it was in 1990. With livestock production down 7 percent in 1991, and with a further 5-10 percent decline in the offing this year, livestock output in 1992 would actually be lower than in 1985.

The breakdown in interregional trade and in the ability to import has led to disruptions in traditional movement of feedstuffs--primarily grain, protein meal, and feed additives--and in the availability of veterinary supplies.

Table 42--Livestock sector and feed supply measures, former USSR

Category	1986	1987	1988	1989	1990	1991	1992
Percent							
Livestock sector growth							
Official Soviet 1/	4.7	1.2	4.1	1.6	-1.3	NA	NA
CPE Branch 2/	6.5	0.4	4.5	1.6	-2.2	-7.1	-7.8
Feed supplies 3/	3.0	1.1	3.7	-0.8	2.2	-1.9	-8.9

NA = Not available.

1/ Gross value of livestock production in 1983 prices, as reported in Narodnoe khozyaistvo SSSR.

2/ Estimated by the CPE Branch based on meat output by type, production of eggs, milk, and wool, and inventory changes in estimated 1986 prices. 3/ July-June years. 1984/85 feed supplies are listed under 1985, etc. From table 34.

Feeding efficiencies--the amount of output per unit of feed--declined in 1991 for the second straight year as a result. Output per animal also suffered. Milk yields per cow declined by 5 percent, the amount of meat produced per head of livestock fell 5 percent for cattle and 3 percent for hogs.<sup>114</sup> All three of these measures had shown steady improvement during the 1980's. If feeding efficiency declines further this year, livestock production could fall by 10 percent, depending on the size of the feed harvest this summer and fall.

### **Privatization, of Sorts**

Disruptions in traditional flows of feedstuffs have affected some producers more than others. The large industrial livestock complexes have been particularly hard hit, because they are almost completely dependent on off-farm purchases of feed. Most of the livestock complexes are devoted to production of poultry meat, eggs, and pork, and rely particularly heavily on the state mixed feed industry. Because of declining state supplies of grain in virtually all former republics this year, mixed feed production has plummeted. With the cutbacks in feed supplies, some complexes reportedly have sold off their inventories to household livestock raisers.

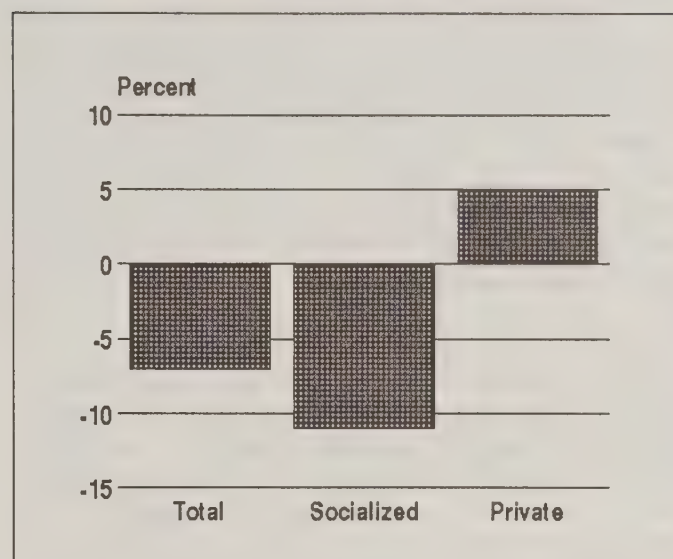
The household livestock raisers (primarily state and collective farm workers operating in their spare time) are relatively well off for feed. Increasingly in the last 2 years, state and collective farm workers have been paid with grain (one reason farms are selling less grain to the state). Households' access to other on-farm feed supplies, such as hay, may also have improved.

The 7 percent decline in livestock output in 1991 masks a divergence between the socialized and private livestock sectors. The former experienced a decline of 11 percent, while livestock output in the private sector actually *increased* by 5 percent (figure 2). Preliminary information indicates a particularly large increase in pork production in the private sector.

While beginning year livestock inventories are not yet available for the CIS by sector, inventory data from Russia indicate a similar divergence in trends between the socialized and private sectors. Inventories of cattle, hogs, and sheep and goats all increased in the private sector during 1991.

The decline of the traditional command-administrative methods of controlling the economy has begun to impact on marketing of livestock products. In 1991, sales to the state procurement network of meat, milk, and eggs declined much more radically than production of those commodities. While meat, milk, and egg production in

**Figure 2**  
**Livestock Output Change, Former USSR, 1991**



the CIS fell by 7, 6, and 3 percent respectively, sales to the state procurement network fell by 16, 14, and 7 percent. Some of the gap between production and sales to the State might be accounted for by a larger share of production being consumed locally. However, increased barter and sales arrangements made directly by farms with other enterprises and organizations outside of the state procurement system explain most of the difference.

The move to greater diversity of marketing channels of livestock output is consistent with a transition to a market-oriented economy. Farms are frequently able to market their livestock output independently at much better terms than through the traditional procurement channels. This despite the fact that the alternative marketing channels remain largely underdeveloped barter arrangements. What's more, a major incentive for farms to sell to the state--access to inputs at state-controlled prices--has weakened considerably in recent years. In 1992, state and collective farms in the Russian Republic will still be obliged to sell up to 45 percent of their livestock product output to the state, but at "free market," rather than state-set, prices. The new private farms will be expected to sell "up to 25 percent" of their output to the state.<sup>115</sup> In recent years, nearly 75 percent of total meat and milk production has been sold to the state.

### **Anticipated Adjustments in the Feed-Livestock Sectors**

As the countries of the former USSR move to adopt market economies, strong impacts are being felt in their feed-livestock sectors. Demand for livestock products, which increasingly exceeded supply in the 1970's and 1980's, is falling drastically and will remain well below peak levels of the late 1980's for a number of years.



Livestock products are becoming relatively more expensive. In the past, 80 percent of retail price subsidies for food in the USSR were devoted to livestock products. As these subsidies are greatly reduced or eliminated, the prices for meat and milk products will increase more rapidly than for food commodities (or consumer goods) as a whole. Because real incomes have fallen since 1990 and are not likely to recover for a number of years, the buying power of the population has been reduced, which will shift buying patterns away from meat and toward bread, other grain products, and potatoes.

The medium term is likely to be a shaking out period on the supply side, with livestock producers facing reduced access to resources. Recent unfavorable movements in prices paid compared with prices received by farms has led to a serious profitability squeeze that may force more livestock operations out of business. A tightening of credit resources, which is necessary for macroeconomic stabilization, will accentuate this process.

The Russian Government, and the governments of other former USSR republics, have intervened in their economies since March to limit the severity of these immediate impacts on livestock producers. Credit has been made available at subsidized rates and, beginning in May, producer price subsidies were reintroduced. The rationale for the re-establishment of producer subsidies was that despite large increases in retail prices for livestock products after January 2, on average, production of all livestock products except eggs was unprofitable. That is, even larger reductions in herds and production, and further increases in retail prices were in the offing. The government felt the need to cushion the shock of this adjustment. However, in a concession to the conservative agrarian lobby in the Congress of People's Deputies, the intent the new subsidies is such as to guarantee profitability for all producers, both efficient and inefficient. Subsequent increases in costs for the rest of this year are expected to once again pressure high-cost producers.

Over the next few years, livestock production will come increasingly from cooperative and private producers. Existing state and collective farms typically have three or more distinct livestock operations on their territory. While some of these operations may be too large to privatize on an individual or family basis, they can become more efficient by assigning property rights to a group of individuals on a cooperative basis. Existing personal household plots, if supported and expanded, and the emerging private peasant farms could also play a greater role in livestock production, as indicated by the experience of both Eastern and Western Europe.

For livestock farms to operate on a market basis, restructuring is needed in upstream and downstream links. The state mixed feed industry continues to function extremely inefficiently as the virtual monopoly producer of complete mixed feed and protein/vitamin supplements (which are mixed with local grain supplies at the farm level) in the countries of the former USSR. The maintenance of relatively high sales quotas for grain in Russia suggests a reluctance in that country to ease government control over the processing and marketing of feed grains. This is expected to be the case, as well, in most of the other countries of the region. The provision of veterinary services also needs to be diversified. While more competition will result in more efficient activity at all steps in the production and marketing chain, in the short run the disruptive impacts of the transition will contribute to further production declines.

Entering 1992, the combination of feed shortages, reduced availability of other inputs, somewhat weakened producer incentives, and dislocations associated with structural reform will result in lower livestock production in 1992. The continued influence of most of these factors next year could well mean further production declines in 1993. If feed supplies are not larger this summer and fall, livestock output in the countries of the former USSR could slip by 10 percent in 1992, with roughly comparable reductions in meat and milk, and smaller declines in egg production. To the extent that farms liquidate their herds as a result of feed shortages, the decline in meat production will be postponed into 1993. Output reductions are likely in all 15 former republics of the USSR, though the declines could be larger in Central Asia, the Transcaucasus, and the Baltics, which are heavily dependent on imported feed, and lack Russia's hard-currency earning capacity.

Certain parallels with the countries of Eastern Europe are apparent in the process of economic transition. Considering the size of their per capita economic output, almost all the countries of the former USSR have consumed much more meat and milk than market oriented economies at a similar level of development. Once short-run distributional problems are addressed, as they were in Poland in 1990, market supplies should prove adequate, albeit at lower consumption levels.

Whether the countries of the former USSR will emerge from the current economic crisis as commercial importers of meat and milk products is open to question. In the case of Poland, while domestic livestock production declined in the first two years of economic transition, consumption declined by even more, resulting in increased exportable supplies of meat and milk products. Where things will settle out for the countries of the former USSR depends on exchange rates and the relative efficiency of domestic

livestock production in those countries. Anything approaching the current ruble/dollar exchange rates of roughly 150 could make livestock producers in most countries of the former USSR competitive on world markets, despite inefficiencies that have yet to be affected by economic restructuring.

### Interstate Comparisons

Recent trends in production of meat and milk by country are presented in tables 43 and 44. The largest meat production declines in 1991 within the CIS occurred in Moldova, Tajikistan, Russia, and Azerbaijan. Production declines for milk were spread fairly evenly across countries. Only Moldova experienced a decline of more than 10 percent, compared with the CIS average of 6 percent. Two minor producing States in Central Asia--Tajikistan and Uzbekistan--actually increased milk output in 1991. In 1992, larger production declines are possible. Traditional feed deficit areas of Central Asia, the Transcaucasus, and parts of Russia are most vulnerable. In addition, the Baltic States may experience larger reductions in 1992 because of feed import constraints and lack of export markets.

Table 43--Production of meat (slaughterweight), former USSR republics

Republics	1980	1985	1989	1990	1991
1,000 tons					
Russia	7,427	8,487	10,082	10,112	9,251
Ukraine	3,500	3,918	4,430	4,358	4,082
Byelarus	857	1,032	1,195	1,181	1,124
Moldova	275	303	356	366	303
Kazakhstan	1,069	1,133	1,573	1,548	1,550
Uzbekistan	330	386	478	484	474
Kyrgyzstan	159	169	241	254	240
Tajikistan	95	105	113	108	87
Turkmenistan	81	86	103	104	103
Armenia	96	107	105	93	89
Azerbaijan	139	168	188	176	162
Georgia	143	167	179	170	NA
Lithuania	422	504	534	530	NA
Latvia	284	324	331	308	NA
Estonia	196	216	229	219	NA

NA = Not available

Sources: *Narodnoe khozyaistvo, SSSR, 1991; Ekonomika i zhizn'* No. 6 (1992).

Per capita availability of meat and milk, by country, are presented in table 45. Because of larger meat imports in 1991, per capita availability of meat declined by 6 percent, slightly less than domestic meat production. Actual per capita consumption probably declined by a greater percentage in 1991 because of higher hoarding and waste rates. What is important, though, is that a decline in total meat supplies of 6 percent was not the cause of the food market imbalances which grew during 1991. Comparison

of meat availability by country for 1991 compared to 1989 indicates that the largest declines have occurred in meat deficit states such as Armenia, Azerbaijan, and Tajikistan. Some meat surplus countries, such as Byelarus and Kazakhstan, had more meat available per capita in 1991 than in 1989. Availability of milk products fell most precipitously between 1989 and 1991 in Azerbaijan, Kyrgyzstan, and Moldova.

Table 44--Production of milk, former USSR republics

Republics	1980	1985	1989	1990	1991
1,000 tons					
Russia	46,823	50,169	55,742	55,715	52,100
Ukraine	21,112	23,039	24,377	24,508	22,700
Byelarus	6,105	6,759	7,419	7,457	6,900
Moldova	1,194	1,402	1,548	1,512	1,300
Kazakhstan	4,597	4,763	5,563	5,642	5,500
Uzbekistan	2,266	2439	2,929	3,034	3,300
Kyrgyzstan	682	771	1,202	1,185	1,100
Tajikistan	499	547	580	575	600
Turkmenistan	306	348	423	436	400
Armenia	488	546	491	432	400
Azerbaijan	796	951	1054	970	900
Georgia	642	684	712	660	NA
Lithuania	2,524	2,973	3,235	3,157	NA
Latvia	1,696	1,957	1,977	1,893	NA
Estonia	1,169	1,260	1,277	1,208	NA

NA = Not available.

Sources: *Narodnoe khozyaistvo, SSSR, 1991; Ekonomika i zhizn'* No. 6 (1992).

Table 45--Per capita availability of meat and milk products, by republic, 1989 and 1991 1/

Republics	Meat		Milk Products	
	1989	1991	1989	1991
Kilograms				
Russia	75	73	396	378
Ukraine	69	65	367	346
Byelarus	73	75	421	415
Moldova	57	55	313	254
Kazakhstan	70	71	305	307
Uzbekistan	31	32	207	210
Kyrgyzstan	51	48	278	249
Tajikistan	29	21	162	154
Turkmenistan	44	43	200	212
Armenia	56	44	480	446
Azerbaijan	34	26	299	217
Georgia	56	NA	326	NA
Lithuania	84	NA	454	NA
Latvia	85	NA	457	NA
Estonia	84	NA	508	NA

NA = Not available. 1/ Meat includes fats and offals. Milk products are in whole milk equivalent.

Sources: *Potreblenie naseleniem produktov pitaniya za 1989 god*, Goskomstat USSR, 1990 and *Agricultural Report*, vol. I, Issue 20, Feb. 17-24, 1992, Interfax-US.



The Russian Republic is far and away the largest importer of meat and milk products among the countries of the former USSR. In 1990, Russia imported 1.5 million tons of meat, more than half of which came from sources outside the former USSR (figure 3). Most of the Russian meat imports are directed to Moscow, St. Petersburg, and other industrial cities within the Non-Black Soil Zone, as well as to Eastern Siberia and the Far East. Other meat importers are concentrated in Central Asia and the Transcaucasus. The Baltic States, Byelorussia, Ukraine, Moldova, and Kazakhstan are meat exporters (table 46). Traditionally, almost all of their exports were directed to other republics of the former USSR. Figure 4 shows the recent pattern of meat exports from Kazakhstan. In relation to their domestic meat production, Lithuania and Estonia were the strongest net exporters of meat, followed by Latvia and Byelorussia.

Figure 3  
Russian Meat Imports, 1990\*

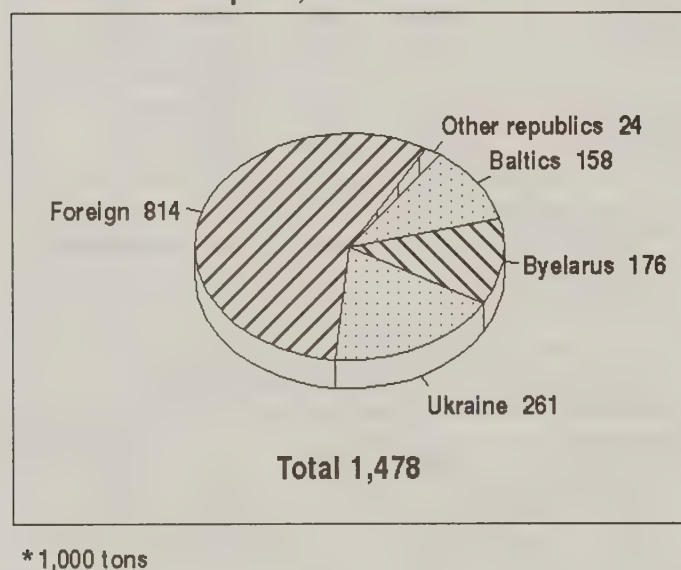


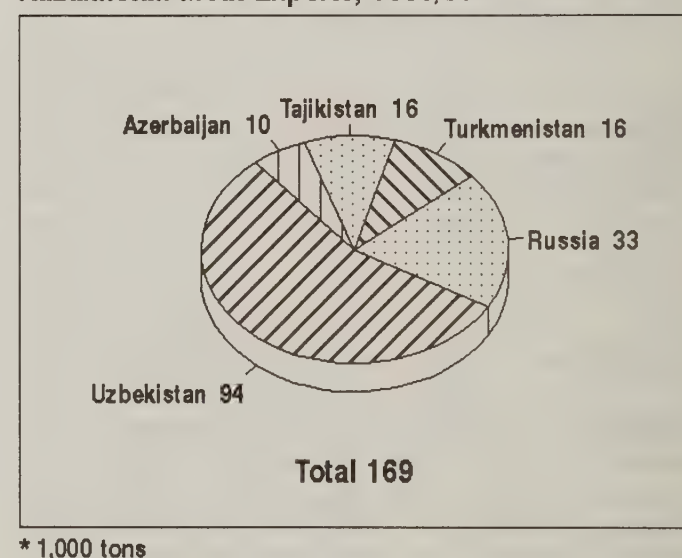
Table 46--Meat trade by republic, former USSR, 1990

Republic	Imports	Exports	Net Exports
1,000 tons			
Russia	1,500.7	69.3	-1,431.5
Ukraine	25.3	315.6	290.3
Byelorussia	8.9	185.1	176.2
Moldova	0.2	53.9	53.7
Kazakhstan	13.5	181.6	168.1
Uzbekistan	205.9	--	-205.9
Kyrgyzstan	1.6	1.1	-0.5
Tajikistan	41.9	7.8	-34.1
Turkmenistan	54.8	0.1	-54.7
Armenia	60.2	--	-60.2
Azerbaijan	69.9	--	-69.9
Georgia	47.2	--	-47.2
Lithuania	0.1	111.9	111.8
Latvia	0.2	38.0	37.8
Estonia	1.8	37.9	36.1
<b>Total</b>	<b>2,032.0</b>	<b>1,002.2</b>	<b>-1,029.8</b>

-- = None or negligible.

Source: *Zavoz i vyvoz tovarov narodnogo potrebleniya v 1990 g.*, Goskomstat USSR, 1991.

Figure 4  
Kazakhstan Meat Exports, 1990/91\*



highly sensitive to exchange rates.<sup>116</sup> For reasons discussed above, production and consumption levels across the region will decline. To the extent that barriers to trade are eliminated among the countries of the former USSR, greater production specialization by region will occur. Production of livestock products in high-cost regions should decline more rapidly than average. Those regions coincide fairly well with current deficit production areas.

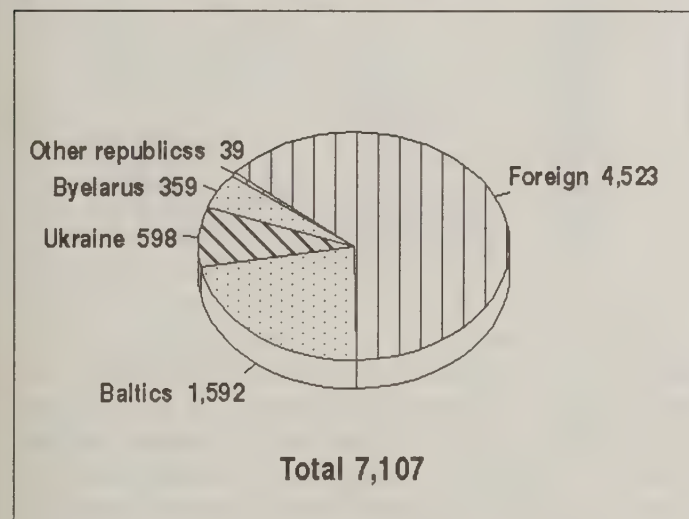
Table 47--Milk product trade by republic, former USSR  
1990 1/

Republic	Imports	Exports	Net Exports
1,000 metric tons			
Russia	7,471.5	330.3	-7,141.1
Ukraine	81.9	1,664.0	1,582.1
Byelarus	7.7	1,547.5	1,540.0
Moldova	18.0	107.8	89.8
Kazakhstan	180.4	32.7	-147.7
Uzbekistan	1,117.5	-	1,177.5
Kyrgyzstan	61.5	0.3	-61.2
Tajikistan	224.2	-	-61.2
Turkmenistan	341.6	3.5	-358.1
Armenia	938.8	-	-938.8
Azerbaijan	1083.2	-	1,083.2
Georgia	925.5	-	-925.5
Lithuania	2.2	1,098.6	1,096.4
Latvia	4.2	459.3	455.2
Estonia	6.6	368.8	362.2
Total	12,464.6	5,612.9	-6,851.8

1/ All milk products in whole milk equivalent.

Source: *Zavoz i vyvoz tovarov narodnogo potrebleniya v 1990 g.*, Goskomstat USSR, 1991.

Figure 5  
Russian Milk Product Imports, 1990\*



\*1,000 tons, whole milk equivalent

If trade barriers among these countries come to predominate, the need for autarky will tend to preserve current production patterns. The traditional meat- and milk-exporting republics are now looking for hard-currency markets, either within the former USSR or beyond. In the short run, trade frictions among countries of the former USSR as well as food assistance from the West are endangering export opportunities. The ability to locate markets outside the former USSR also appears problematic. These factors will lead to reduced livestock product exports in 1992 from surplus producers in the former USSR. (Edward C. Cook)

## Protein Feed Needs Remain High

Oilseed meal consumption will fall in 1992 unless imports exceed 1991's relatively high level by about 8 percent. At the end of 1991 and beginning of 1992, the former republics were importing soybean meal at a pace that, if sustained, would result in record imports. A December 1991 decree stated that 1.5 million tons of feed protein would be imported for Russia in the first quarter of 1992. The apparently high priority given to protein feeds at this time may signal that the latest reformers are taking seriously the inefficiencies in the livestock sector caused by inadequate protein in animal feed rations.

The decline in 1991 domestic oilseed production was about 9 percent and will lead to almost as large a decline in domestic protein meal and oil production in 1992 (table 48). In 1991, increased soybean and soybean meal imports more than offset the roughly 5 percent decline in meal available from 1990's domestic oilseeds. However, the 5 percent decline in vegetable oil production and the sharp decline in vegetable oil imports in 1991 cut consumers vegetable oil supplies sharply. Oil imports may have been about half 1990's and a third of 1989's.

Table 48--Oilseed area, yield, and production, former USSR 1/

Year	Sun-flower seed	Cotton-seed	Soy-bean	Rape-seed	Other	Total
1,000 hectares						
Area						
1986	3,848	3,475	745	144	473	8,686
1987	4,156	3,527	783	407	501	9,374
1988	4,280	3,432	760	607	519	9,598
1989	4,460	3,338	830	512	464	9,604
1990	4,665	3,171	827	460	461	9,584
1991	4,620	3,006	808	500	228	9,162
Tons per hectare						
Yield						
1986	1.37	1.42	0.96	0.76	0.35	1.29
1987	1.47	1.38	0.92	0.73	0.33	1.29
1988	1.44	1.65	1.16	0.69	0.35	1.34
1989	1.59	1.67	1.15	0.83	0.58	1.44
1990	1.41	1.71	1.06	1.10	0.77	1.39
1991	1.22	1.71	1.14	1.10	0.83	1.31
1,000 metric tons						
Production						
1986	5,272	4,940	703	110	166	11,191
1987	6,118	4,850	712	296	163	12,139
1988	6,164	5,214	880	420	180	12,858
1989	7,070	5,140	956	423	271	13,860
1990	6,559	4,983	880	506	355	13,283
1991	5,641	4,680	920	550	189	11,980

1/ Cottonseed is an estimate derived by applying a 0.6 coefficient to seedcotton production; "other" does not include oilseeds from hemp; and "total" is an estimate based on Soviet data on total oilseed production without cottonseed. Estimates for 1991 rapeseed area and 1989-91 rapeseed, soybean, other, and total yield and production.



Sharply higher consumer prices for vegetable oil and most other consumer goods should cut excess consumer demand for vegetable oil in 1992, if the republics do not allow offsetting income growth financed by deficit spending. However, the declines will not likely be sufficient to offset the production decline, increasing the pressure for imports. How much of that pressure will result in higher imports depends in part on the financing offered by the exporting countries. Argentina supplied about 35 percent of vegetable oil imports in 1989-90 and Malaysia another 20-25 percent. Because of a lack of financing by such traditional suppliers, the former USSR has reduced imports and turned to suppliers providing assistance, including the United States.

The former USSR contracted for about 80,000 tons of soybean oil and 30,000 tons of sunflowerseed oil as of mid-April 1992 for marketing year 1991/92. The sales were the first U.S. vegetable oil sales to the USSR since FY 1985. They were financed under the USDA's GSM-102 Credit Guarantee Program. The soybean oil sales were also covered by the Export Enhancement Program bonuses. The bonuses averaged \$63 per ton. The sunflowerseed oil sales were under the Sunflowerseed Oil Assistance Program, with bonuses averaging about \$96 per ton.

Oilseed yields may increase somewhat in 1992 if more normal weather prevails and if the progress in market reforms improves incentives to use the declining input supplies. However, lags are inevitable in input reallocation, whether it involves land, labor, or manufactured inputs. Farms can cut production of unprofitable crops quickly. Acquiring inputs to expand area or raise yields for profitable crops takes more time.

The declining availability of trade data is clearly illustrated in the Soviet trade report for the first half of 1991. No information on total imports of oilseeds, oilseed meals, vegetable oils, or any particular type of any of these commodity groups was available. Information on oilseed meal use and interrepublic trade is, if possible, more deficient.

### ***Large Protein Deficit Remains***

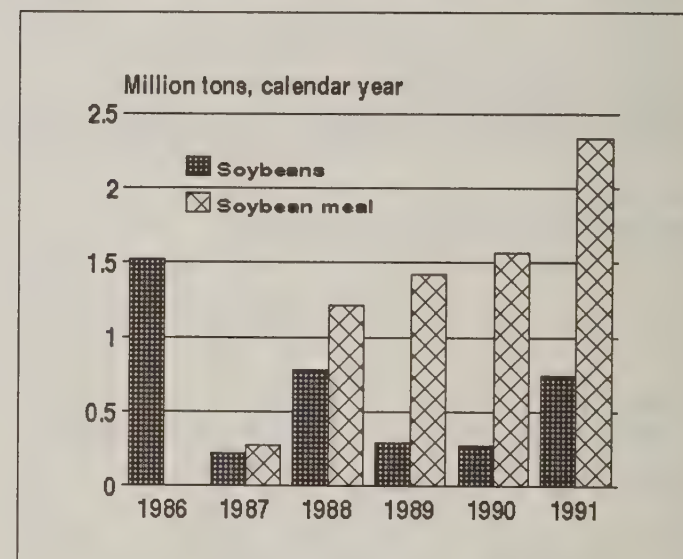
Soybean meal imports were about 3 million tons in 1991, likely second to 1989's record 3.6 million tons. Soybean imports in 1991 may have approached a million tons. Soybeans and soybean meal imports accounted for over 40 percent of oilseed meal consumption in 1991.

A primary factor affecting the level and sources of oilseed and oilseed meal imports will be the availability of

government credit programs in the exporting countries. Other feed protein exporters will offer less competition to the U.S. credit terms, than will competing grain exporters. The former USSR republics are using their reduced hard currency earnings to service and retire debt run up by nonagricultural imports in 1988-90. They also need hard currency to finance nonagricultural imports, because generally less government credit assistance is available to exporters for nonagricultural goods.

The United States accounted for about three quarters of the USSR's protein meal imports in 1991, up from roughly 55-60 percent in 1990 and 40 percent in 1989. In 1991, the United States sold all 2.3 million tons of soybean meal and 741,000 tons of soybeans exports to the USSR in 1991 under GSM credit guarantees (figure 6).

**Figure 6**  
**U.S. Soybean and Meal Exports to the USSR**



Despite sizable imports, the former Soviet republics in total have had a continuing feed protein deficit, estimated at 10-15 million tons in soybean meal equivalent. Oilseed meals account for only about 5 percent of mixed feed ingredients. This compares to about 20 percent in many Western countries. Trying to narrow this large protein deficit could maintain high interest in imports despite declining livestock inventories. Nevertheless, in the past, when imports were cut by central authorities for financial reasons, feed protein imports often declined more than proportionally.

Raising the protein content of feed would increase animal productivity and feeding efficiency (including that of imported grain). As economic reforms proceed in making farms economically accountable and freeing agricultural trade, interest in protein feed imports should grow in the long term. In the short term, however, imports of protein

feeds could decline as they have in Poland. There the economic shakeout caused a sharp drop in domestic meat demand. Excess domestic feed supplies and low exchange rates made grain and other domestic feeds relatively cheaper despite their lower productivity.

### ***Sunflowers the Biggest Uncertainty in 1992***

A key to forecasting the 1992 crop is how to allocate the 1991 production declines for sunflowerseeds among weather, input, and incentive factors. Weather specialists now attribute part of 1991 decreased crop production to poorer-than-average weather. In 1991, the production of sunflowerseeds, the former USSR's primary oilseed crop, was reported down 14 percent. The preliminary planted area was down only 1 percent from 1990's final. This indicates that most of the decline was in yields, although later information suggests that the area was down several percent.

Production of cottonseed, the next largest oilseed crop, was down about 5 percent. Almost all the decline was associated with the deliberate cutback in area. Small area declines may continue as more land is allocated to private plots or abandoned because of salinization.

Sunflowerseeds and cottonseeds usually account for about 85 percent of oilseed production. Soybean production increased about 5 percent in 1991 because of higher yields, but soybeans account for only about 8 percent of total oilseed production.

Input availability began to decline in 1986-87. The decline in availability will continue in 1992. These declines are always cited when commodity production drops, but are ignored when production or yields increase. The declines in availability do not necessarily translate into yield declines. Sunflowerseed yield was record high in 1989 (table 49) and grain yield was a record in 1990. Seedcotton yields in 1991 remained relatively high. Soybean yields in 1991 were near record levels. The poor quality of Soviet inputs and the lack of incentives for efficient use frequently limited their productivity.

Some of the changes taking place in the agricultural sector have the potential to rationalize input use and increase its productivity. These factors may help to offset some of the potential losses from lower input availability. Decentralization, less administrative reallocation, and decreasing subsidies to inefficient producers are allowing (in fact forcing) farms into considering the economic rational for choices among commodities and among input combinations.

In 1991, the government was to reduce the number of price zones and bonuses that supported production in

marginal areas and by inefficient producers.

Sunflowerseeds were to have only 2 zones, other oilseeds only 1. The new average prices were to slightly exceed previous levels. Sunflowerseed production according to Soviet estimates would be substantially more profitable than grain production. Partial data indicate that average producer oilseed prices rose faster than grain prices in 1991 to widen this margin.

Table 49--Sunflowerseed and soybean production, former USSR republics

Seed and republic	1986	1987	1988	1989	1990
<b>Sunflowerseed</b>					
Area	1,000 hectares				
Total	3,848	4,156	4,280	4,460	4,665
Russia	2,112	2,377	2,438	2,565	2,739
Ukraine	1,498	1,536	1,577	1,615	1,636
Kazakhstan	96	104	122	131	137
Georgia	10	10	12	14	13
Moldova	129	126	127	129	134
Yield	Tons per hectare				
Total	1.37	1.47	1.44	1.59	1.41
Russia	1.12	1.29	1.21	1.47	1.25
Ukraine	1.70	1.75	1.75	1.77	1.66
Kazakhstan	0.87	1.12	1.14	0.80	1.03
Georgia	0.63	0.47	1.36	0.19	0.65
Moldova	1.96	1.66	2.12	2.18	1.88
Production	1,000 metric tons				
Total	5,272	6,118	6,164	7,070	6,559
Russia	2,363	3,030	2,958	3,789	3,427
Ukraine	2,561	2,716	2,775	2,885	2,725
Kazakhstan	83	117	139	105	141
Georgia	6	5	17	3	9
Moldova	253	209	269	282	252
<b>Soybean</b>					
Area	1,000 hectares				
Total	745	783	760	830	827
Russia	612	619	598	651	675
Ukraine	64	74	76	105	93
Kazakhstan	31	38	28	25	23
Georgia	12	12	12	10	8
Moldova	20	32	39	37	27
Yield	Tons per hectare				
Total	0.96	0.92	1.16	1.15	1.06
Russia	0.94	0.87	1.13	1.13	1.06
Ukraine	1.05	1.14	1.32	1.17	1.07
Kazakhstan	1.10	1.20	1.47	1.34	1.44
Georgia	0.64	0.57	0.56	0.56	0.44
Moldova	1.03	1.15	1.37	1.38	0.90
Production	1,000 metric tons				
Total	712	720	884	956	880
Russia	575	541	675	738	717
Ukraine	68	85	101	124	99
Kazakhstan	35	45	41	33	33
Georgia	8	7	7	6	3
Moldova	20	37	53	51	24

Sources: USSR and republics annual statistical books and *Vestnik statistiki*, various issues.



## Republic Production and Consumption Differences

The changes taking place in the former USSR are resulting in less interregional movement of goods in the short term. Surplus production areas at first may increase their own use and stocks. They are looking for external hard currency markets for their surpluses. For example, the former USSR republics during January-November 1991 shipped Italy 52,000 tons of sunflowerseeds (up from 1,500 tons in the same period 1990) and 3,400 tons of rapeseed (up from 1,400 in 1990).

Russia produces about a third of total oilseeds, including about half the sunflowerseeds and three quarters of soybeans. It, however, remains a large deficit area of both feed protein and vegetable oil. It accounts for about half of livestock production. Its sunflower yields average about 20 percent below the Ukraine's. The Ukraine produces over 20 percent of total oilseeds and over 40 percent of sunflower seeds. The Central Asian republics produce about 40 percent of total oilseeds, virtually all cottonseed.

In 1991, the USSR published 1989 data on interrepublic vegetable oil trade. This information was combined with production and consumption data to derive republic level

vegetable oil balances for 1989. The balances have several anomalies, but nevertheless can be used to roughly characterize vegetable oil production, consumption, and trade (table 50).<sup>117</sup>

Russia accounted for about 60 percent of vegetable oil imports. Its net imports accounted for about a quarter of consumption. Byelarus, Kyrgyzstan, Armenia, Georgia, and the Baltics are all quite dependent on vegetable oil imports. The Ukraine accounted for about 40 percent of exports, primarily sunflowerseed oil. The next two largest exporters were Uzbekistan and Turkmenistan, almost all cottonseed oil.

The effect of the decline in oilseed production and vegetable oil imports may be overstated in 1991 retail sales figures reported in the annual report on the economy.<sup>118</sup> Sales through state channels have fallen as alternative marketing channels slowly develop. Still, the relative changes in sales in different republics provide some indications of changing interrepublic trading and consumption patterns. Uzbekistan registered the smallest decline--4 percent. Moreover, Turkmenistan, the number 2 cotton producer, increased domestic sales by 8 percent. Sales in Russian were down 17 percent, in the Ukraine 6 percent. (Kathryn Zeimet and Sharon S. Sheffield)

Table 50--Vegetable oil balances, former USSR republics, 1989

Republic	Production	Exports	Imports	Net Imports	Available	Annual per capita consumption	Population	Consumption	Stock change implied	Stock/available ratio
	-----1,000 metric tons-----					Kilograms	1,000	1,000 metric tons		Percent
Russia	1,127.0	54.3	428.5	374.2	1,501.2	10.4	148,041	1,539.6	-38.4	-2.5
Ukraine	1,078.0	276.5	76.4	-200.1	877.9	11.9	51,839	616.9	261.0	42.3
Byelarus	25.0	18.2	57.8	39.6	64.6	8.9	10,259	91.3	-26.7	-29.2
Moldova	118.0	61.2	0.1	-61.1	56.9	13.0	4,362	56.7	0.2	0.3
Kazakhstan	92.0	16.7	29.8	13.1	105.1	11.3	16,691	188.6	-83.5	-44.3
Uzbekistan	513.0	150.2	15.6	-134.6	378.4	12.6	20,322	256.1	122.3	47.8
Kyrgyzstan	15.0	0.0	23.9	23.9	38.9	9.9	4,367	43.2	-4.3	-10.0
Tajikistan	93.0	3.7	7.5	3.8	96.8	12.3	5,248	64.6	32.2	50.0
Turkmenistan	108.0	83.2	1.1	-82.1	25.9	9.1	3,622	33.0	-7.1	-21.4
Armenia	8.0	0	16.7	16.7	24.7	3.1	5,456	16.9	7.8	46.0
Azerbaijan	49.0	10.3	14.3	4.0	53.0	2.1	3,293	6.9	46.1	666.4
Georgia	9.0	0.0	22.9	22.9	31.9	6.0	7,131	42.8	-10.9	-25.4
Lithuania	0.6	0	18.9	18.9	19.5	8.3	3,723	30.9	-11.4	-36.9
Latvia	13.0	0	8.4	8.4	21.4	8.8	2,687	23.6	-2.2	-9.5
Estonia	0	0	6.1	6.1	6.1	9.3	1,583	14.7	-8.6	-58.6
Total	3,248.6	674.3	728.0	53.7	3,302.3	10.5	288,624	3,025.8	276.5	9.1

Sources: Production, population, and per capita consumption are from *Narodnoe khozyaistvo*, various issues. The trade data are from *Torgovlya: Statisticheskii sbornik*, Moscow, 1991.

## Sugar Consumption To Fall

Import demand for sugar by the former USSR should be up substantially in 1992 based on 1991's low sugarbeet output. Domestic sugar production from the 1991 sugarbeet crop is down 29 percent, the lowest since 1976. To maintain average per capita consumption in the republics, at 1991's level, would require more than a 40 percent increase in imports from 1991. Total sugar imports (raw and refined combined) in 1991 were already at a 9 year high. A million tons of sugar provides about 3.5 kilograms per capita annually. If total 1992 sugar imports remain at 1991's estimated 5.2 million tons (refined basis), per capita consumption in 1992 could fall to the lowest levels in about 20 years.

The breakdown in the interrepublic trade is contributing to higher demand for sugar imports. Interrepublic trade according to economic comparative advantage has not developed to replace the defunct system of interrepublic transfer by administrative fiat. Sugar demand in total for all USSR republics could increase as the Ukraine increases domestic consumption and builds stocks and the other republics turn to foreign imports to make up losses from the Ukraine.<sup>19</sup> The Ukraine, which has produced about 55 percent of total beet sugar over the last 10 years, reduced sugar shipments to other republics even in 1991 as the republics renegotiated their economic and political ties.

Other factors, however, may lower effective import demand from the levels implied from the production losses and decline in Ukrainian shipments. The decline in GNP in the former USSR is expected to continue in 1992, following on 1991's sizeable drop. Such declines ultimately must affect living standards, although money

emission unjustified by production raised nominal incomes in 1991. Per capita sweetener consumption in the former USSR, while below that in a number of Western countries, is likely still higher than in others such as Italy and Japan. Prices for many consumer goods, including sugar and confectionery products, increased many fold from during 1991 to mid-1992. The price increases should have income and price effects that could decrease consumption, in part through cutting waste. However, in early 1992, empty shelves and queues still characterized the sugar market despite potentially high supplies.

### *Terms of Trade with Cuba Changing*

The final 1992 sugar import figure will also reflect the republics' ability to finance imports. The USSR imported about a third of its sugar consumption during 1986-91, almost all as raw cane sugar (table 51). Cuba accounted for about three-quarters of Soviet sugar imports during the period. The changing terms of trade with Cuba mean that the relative price of sugar imports is falling substantially versus most other imports by the former USSR. CMEA, of which Cuba and the USSR were members, was formally disbanded in 1991. With the Council's dissolution, trade among the members was to be valued at world prices. Previously, traded commodities were valued at negotiated prices that through time had become very arbitrary. The bias varied by commodity.

According to data for the first half of 1991, the price the USSR paid for Cuban raw sugar declined substantially, but still remained about twice that from other suppliers. In 1989 and 1990, the USSR reported paying Cuba about 6 times the prices it paid other suppliers of raw sugar. The subsidy implied for 1989 and 1990 was not quite as large

Table 51--Refined sugar balances, former USSR 1/

Year	Area	Output	State pur- chases	Sugar prod. from beets	Ref. cane sugar prod.	Raw sugar imports	Raw sugar imports from Cuba	Refined sugar net imports	Calc. consump- tion	Popu- lation	Per capita consump- tion	Avail. minus calc. cons.
	Million hectares	-----Million metric tons-----								Mill.	Kilograms per year	Million tons
1981/82	3.63	60.8	53.5	5.9	5.3	6.2	4.2	0.9	12.0	268.8	44.5	0.1
1982/83	3.53	71.4	64.1	6.8	4.4	4.8	3.0	1.0	12.0	271.2	44.2	0.2
1983/84	3.49	81.8	74.5	8.0	4.6	5.0	3.5	0.5	12.1	273.8	44.3	1.0
1984/85	3.46	85.4	76.0	7.9	4.2	4.3	3.7	--	11.7	276.3	42.2	0.5
1985/86	3.41	82.1	72.8	7.6	4.7	5.2	3.9	-0.3	12.3	278.8	44.0	-0.2
1986/87	3.40	79.3	70.7	8.0	4.9	5.0	3.8	-0.1	13.3	281.7	47.2	-0.6
1987/88	3.40	90.7	78.9	8.8	3.9	4.1	3.0	-0.1	13.3	284.5	46.8	-0.7
1988/89	3.37	88.0	78.0	8.2	4.6	5.0	3.5	0.2	12.2	286.7	42.5	0.7
1989/90	3.35	97.4	91.9	8.8	3.8	3.9	3.3	-0.2	13.0	288.8	44.9	-0.6
1990/91	3.29	81.7	73.9	8.7	4.2	4.5	3.5	0.9	13.1	290.8	45.0	0.7
1991/92	3.15	66.2	57.6	6.3	4.2	4.5	3.5	1.0	11.4	292.8	39.0	0.1

1/ Data are actual or directly derived from Soviet data, except for 1991 and 1992 per capita consumption and trade. The trade forecasts for 1992 were made to illustrate the potential effects on consumption of the decline in beet sugar output from the 1991 sugarbeet crop. The beet sugar is from the first year crop, all other data are for the second calendar year.



as the sugar unit values indicate. Under the distorted pricing arrangements, the USSR reported charging Cuba about 2 times the world price for crude oil. Thus, if comparison of these two predominant trade items are good indicators, Cuba was receiving about 3 times the world price in those two years. The 1991 preliminary data have no information on crude oil exports to Cuba. This lack of information prevents a complete understanding of the potential fall in sugar import prices for the USSR.

Russia and other republics are continuing to press for terms of trade improvements with Cuba as they negotiate their 1992 deals. To the extent that the former USSR republics are successful in negotiating lower prices with Cuba or turn to other suppliers, sugar will be a relatively cheaper import. Preliminary information suggests that the republics are paying Cuba prices much closer to world levels. A February report said that one 1992 Russian deal was 500,000 tons of sugar for 900,000 tons of oil. At early 1992 prices, this equals about \$225 per ton. Another report said that the annual Russian-Cuban agreement was for 2.5 million tons for 4.5 million tons of oil. Kazakhstan will reportedly get 200,000 tons of Cuban sugar, a third of its imports in 1992, for 400,000 tons of Kazakh oil. In January, the Ukraine reportedly signed a 3-year trade agreement with Cuba that included sugar.

Some republics are complaining about the high price the Ukraine is charging them for the white sugar it refines from Cuban imports. This is one reason that republics are pursuing other sources, including those offering refined sugar. China is emerging as an important new source. One report indicates that in 1992 Kazakhstan is purchasing 150,000 tons from China, other suppliers include India and Hungary. Byelarus, saying that it will not be receiving Ukrainian sugar, reportedly will import 200,000 tons from China.

As the republics are turning to alternative sources, they are again buying larger amounts of refined sugar. White sugar imports may exceed the million ton levels of the early 1980's. This reflects either lack of refining capacity in a number of republics or unhappiness about the prices the Ukraine charges for refining imported sugar. Another factor likely is the preferential arrangements that developed Western countries can offer. These include barter arrangements such as those for a reported 600,000 tons with French firms in 1991.

#### ***Beet Sugar Production Increase in 1992 Uncertain***

Sugarbeet yields for the former USSR were down 17 percent and area 4 percent in 1991. Russia's 1991 sugarbeet production was 24.4 million tons, down from

32.3 million tons in 1990. If poor weather largely explained 1991's low sugarbeet crop, 1992's crop could increase with normal weather. If so, the need for sugar imports could decline in 1993 from 1992's very high levels. However, other factors will dampen the possible 1992 increase in sugar production. The factors include greater decision-making power and financial autonomy for farms, changing input and commodity prices, and regional interests.

The question of economic incentives has become perhaps the most important factor limiting sugarbeet production. With the breakdown of administrative control, economic factors have become more important reasons for realignments and changes in 1991 input use and production decisions.

The government planned to raise the average sugarbeet procurement price almost 40 percent in 1991. In addition, producers were to receive a 5 percent premium for each percent increase in sugar content of beets over the minimum level.<sup>120</sup> Partial data suggest that the average price increase may have been less, but still over 20 percent. The net effect of the price shifts has been difficult to assess as farms faced changed prices for most agricultural products in 1991. The new sugarbeet price, however, left sugar's potential profit margin (based on Soviet methodology) much lower than for grain and sunflowerseeds.

Also in 1991, the government was to reduce bonuses and the number of pricing zones. These had supported production in marginal areas and by inefficient producers. Now inefficient producers face relatively lower prices than before and efficient producers relatively higher prices. Inefficient producers can cut back on production faster than efficient producers can gear up in response to higher prices. Still, although production might fall in total in the short run, yields could improve almost immediately. Production increases would follow to the extent that efficient producers expanded area.

Input use will continue to decline because of lower input production, skyrocketing input prices, and the trade breakdown among republics and with Eastern Europe. (Poland and East Germany provided 83 percent of equipment for the sugar industry in 1989). However, the effects of reduced inputs in 1992 should not be overstated. In the past, improper and excessive use of poor quality inputs limited yield responses. For instance, input deliveries have been falling since 1986-87, but agricultural production set a record in 1989.<sup>121</sup> An analysis associated only 10 percent of sugarbeet yield changes during 1974-88 with fertilizer application rates. Sugarbeet yields were a record in 1989 despite a decline in fertilizer

deliveries to farms. Fertilizer use on sugarbeets in the USSR in 1988 (the last year for which data are available), showed sugarbeet application rates much higher than in the United States and about on par with heavy users in Western Europe.

The decreased government supervision and the desire to keep products for their own use and barter may be adversely affecting sugarbeet production relative to grain, vegetables, and fruits. Producers have more alternatives regarding use and marketing of the latter commodities. Sugarbeet producers' only option is to sell their crops to government plants who have monopoly power.

The inability to develop terms of trade and effective currencies in the face of declining administrative reallocation disrupted interrepublic sugar trade in 1991. These problems could eventually lead the Ukraine Government to discriminate against sugarbeet production relative to other activities. Export tariffs could limit export potential. In 1989, the Ukraine's beet sugar output was two times its consumption level. Its cane sugar refining raised its total sugar output to over 2.5 times consumption. The Ukraine accounted for 56 percent of the former USSR sugarbeet output in 1991. The area decline in 1991 was fairly evenly distributed between the

Ukraine and Russia, which produced 37 percent of the crop.

Worsening sugar supplies in Russia could lead to increased incentives for sugarbeet production there. Offsetting a decline in the Ukraine's sugarbeet area would require proportionally more land in Russia. Sugarbeet yields in Russia average about a quarter less than the Ukraine's. A "Sugar for Russia" program calls for more than doubling beet sugar production to 7 million tons by 2000. This plan would require substantial investment that will be difficult to do given the dislocations of reform and competition for resources from other crops and industries.

Russia has been heavily dependent on sugar shipments from the Ukraine and Cuba. In 1989 (the latest year for which interrepublic sugar trade data are available), Russia produced a little more than 40 percent of its sugar consumption from its sugar beets (table 52). About 20 percent of consumption came from Russia's processing of raw cane sugar, almost all from Cuba. Almost all the remainder came from the Ukraine. Russia's per capita sugar consumption in the late 1980's about equalled the Ukraine's. However, present per capita consumption has fallen as the Ukraine's has increased.

Table 52--Refined sugar balances, former USSR republics, 1988/89

Republic	Sugarbeet procurements	Beet sugar output	Cane sugar output	Total sugar output	Imports	Exports	Availability	Consumption	Population	Per capita consumption	Stock change derived
	-----1,000 tons-----								1,000	Kilograms per year	1,000 tons
Russia	29,581	2,931	1,261	4,192	2,838	315	6,715	6,632	147,386	45	83
Ukraine	42,112	4,590	1,837	6,427	0	3,498	2,929	2,430	51,704	47	499
Byelarus	1,442	157	203	360	162	0	523	469	10,200	46	53
Moldova	2,051	224	150	373	8	171	210	195	4,341	45	15
Kazakhstan	1,224	133	275	408	280	15	673	612	16,538	37	61
Uzbekistan	0	0	0	0	485	0	485	498	19,906	25	-12
Kyrgyzstan	0	0	415	415	24	301	138	146	4,291	34	-8
Tajikistan	0	0	0	0	141	0	141	138	5,112	27	3
Turkmenistan	0	0	0	0	97	0	97	138	3,534	39	-41
Georgia	50	5	29	34	228	0	262	213	5,449	39	50
Armenia	115	13	0	13	149	0	161	112	3,283	34	50
Azerbaijan	0	0	0	0	273	0	273	260	7,029	37	13
Lithuania	1,049	114	154	269	1	50	220	173	3,690	47	46
Latvia	383	32	218	250	9	108	150	126	2,681	47	24
Estonia	0	0	0	0	90	0	90	69	1,573	44	21
Total	78,007	8,200	4,541	12,741	4,784	4,458	13,067	12,211	286,717	43	856

Sources: Narodnoe khozyaistvo, USSR and republic annual reports, for sugarbeet procurements, total sugar production, population, and per capita consumption. Trade: Statistical Summary, State Committee for Statistics, Moscow, 1991 for trade data. The extraction rate assumed for sugarbeets from the 1988 crop was 10.9 percent for all except USSR, Russia, and Ukraine, which were reported. The raw/refined cane ratio was assumed to be .9048 in order to match reported total USSR raw sugar imports.

Note: In this balance, production of sugar from the 1988 beet crop is associated with calendar 1989 consumption and trade data. The 1989 cane sugar refinement is checked two ways--one against total 1989 sugar production and the second against 1989 raw sugar imports.



Moldova is the only other republic that is self-sufficient solely on its beet sugar production and its per capita consumption may have increased like the Ukraine's. Lithuania, Latvia, and Kyrgyzstan were net sugar exporters only because of their processing imported raw sugar. The Baltics per capita consumption had rivaled the Ukraine's in the late 1980's. However, it has probably fallen substantially. The Central Asian and Transcaucasus republics consume the lowest per capita levels of sugar. They are virtually totally dependent on sugar imports and only Kyrgyzstan can refine raw sugar imports.

Thorough economic reform ultimately could change the sugar situation in the former USSR in far reaching ways. By the end of the 1990's, successful reform should mean greatly improved agricultural productivity. Sugarbeet yields even in the Ukraine are well below those in the United States and Western Europe. Furthermore, the former USSR's calculated sugar extraction rates are 20 percent below U.S. levels and as much as 40 percent behind some Western European countries. Most of the difference reflects losses as beets rot at refineries, rather than poor refining technology or low sugar content at harvest. The losses result because of inefficient use of facilities and poor maintenance of aging equipment. If yields and extraction rates neared Western levels, the former USSR could be self-sufficient in sugar. However, true market reform would not necessarily lead to higher production and self-sufficiency.

True economic reform that included trade reform would lead the former USSR republics to produce and trade according to comparative advantage. Many developing countries produce inexpensive cane sugar. The former republics may find gains from trading their raw materials for cane sugar from these producers. The developing countries may also be more receptive consumers for manufactures from the former USSR, than will developed Western countries in the mid-term. (Yuri Markish and Kathryn Zeimetz)

### New Conditions for Central Asian Cotton Producers

The disintegration of the Soviet Union will greatly affect the world cotton market in several ways. The Central Asian cotton republics will have control of production and marketing decisions. In addition, the economic changes occurring in the cotton importing regions in the former USSR, including price and income changes, should cut demand in the short term. Similar factors affecting demand will likely also cut consumption in East European and other former bloc countries that have been the main destinations for Central Asian cotton exports.

A number of factors, some contradictory, will affect cotton production and trade by the former Soviet republics. The decrease in effective demand for cotton by the former USSR republics and former CMEA countries, the need to increase food self-sufficiency, the cost squeeze from higher agricultural input costs, and reduced input availability point to further declines in cotton production (table 53). The need to increase export earnings to finance formerly subsidized imports (including higher priced energy), however, will raise policymakers interest in maintaining production and exports. Most cotton producing republics have little potential for finding alternative exports.

Table 53--Lint cotton production and trade, former USSR 1/

Year	Production	Imports	Exports	Domestic supplies 2/
1,000 metric tons				
1980/81	2,700	22	916	1,806
1981/82	2,402	26	949	1,479
1982/83	2,312	177	774	1,715
1983/84	2,172	166	642	1,696
1984/85	2,597	187	659	2,125
1985/86	2,782	88	713	2,157
1986/87	2,660	75	783	1,952
1987/88	2,502	90	731	1,861
1988/89	2,762	77	791	2,048
1989/90	2,657	55	490	2,222
1990/91	2,593	NA	395	NA
1991/92 3/	2,400	NA	NA	NA

NA = Not available.

1/ USSR published data, except ERS production estimates for 1981-84 based on USSR 1987 data of 2,453-million-ton average for 1981-85. Calendar year trade beginning with 1981 data for 1980/81. 2/ Production minus net exports. 3/ *Ekonomika i zhizn'*, No. 6 (1992).

The analysis of cotton trade and use in the former USSR has been greatly complicated in the last year by a decline in information on trading. Less information is available on interrepublic cotton trade than is available for some other agricultural commodities.

### Autonomy for the Producing Republics

Cotton is produced in 6 of the 15 former USSR republics. Uzbekistan accounted for about 60 percent of the 1991 cotton lint output by the USSR (table 54). If republics are ranked individually in the world, Uzbekistan is the fifth largest producer. Kyrgyzstan, producing less than 1 percent of Soviet cotton, ranks about 30th. Cotton accounts for 41 percent of cropland in Uzbekistan, 37 percent in Tajikistan, and 50 percent in Turkmenistan.

Table 54--Cotton production, former USSR

Republic	1981-85	1987	1988	1989	1990	1991
Million hectares						
Area						
Total	3.242	3.527	3.432	3.338	3.171	3.000
Uzbekistan	1.931	2.108	2.017	1.970	1.830	1.712
Turkmenistan	.532	.633	.636	.633	.623	.602
Tajikistan	.308	.324	.320	.309	.304	.296
Azerbaijan	.297	.303	.299	.280	.264	.245
Kazakhstan	.130	.128	.128	.119	.120	.119
Kirgizia	.044	.031	.032	.027	.030	.026
Million tons						
Seed cotton production						
Total	8.314	8.084	8.690	8.566	8.305	7.800
Uzbekistan	5.159	4.858	5.365	5.292	5.058	4.658
Turkmenistan	1.142	1.272	1.341	1.382	1.457	1.430
Tajikistan	.917	.872	.963	.921	.842	.820
Azerbaijan	.707	.697	.616	.582	.543	.540
Kazakhstan	.302	.312	.325	.315	.324	.290
Kirgizia	.087	.073	.079	.074	.081	.062
Extra-long staple seed cotton						
Total	1.088	1.179	1.335	.921	1.081	NA
Uzbekistan	.494	.531	.561	.344	.383	NA
Turkmenistan	.304	.372	.444	.441	.445	NA
Tajikistan	.289	.276	.329	.136	.253	NA
Lint production						
Total	2.453	2.502	2.762	2.657	2.593	2.400
Uzbekistan	1.509	1.505	1.732	1.656	1.593	1.460
Turkmenistan	.335	.380	.410	.397	.437	.392
Tajikistan	.278	.276	.294	.290	.256	.251
Azerbaijan	.212	.225	.203	.192	.180	.178
Kazakhstan	.093	.096	.099	.099	.102	.098
Kirgizia	.026	.020	.024	.023	.025	.021

NA = Not available.

Sources: *Narodnoe khozyaistvo* (1990); *Ekonomika i zhizn'*, No. 6 (1992); ICAC, Nov.-Dec. 1991; Tajik radio, Dushanbe, 11/30/91, translated in SWB, SU/W0208, 12/6/91.

Cotton area in total, continuing its decline in all republics, was down 5 percent in 1991. Area was down 6 percent in Uzbekistan from 1990 to 1991. Total cotton area is down 15 percent from its 1987 peak (19 percent in Uzbekistan from its 1987 peak). New areas were not brought into production to offset the areas abandoned because of serious salinization. The decline in irrigation investment and the progression of salinization found in heavily irrigated areas worldwide will contribute to further area declines.

The continuing breakdown in interregional trade in the former USSR is raising interest in food self-sufficiency. The Central Asian republics are net exporters of vegetables. However, excluding Kazakhstan, they have large food deficits. They import 60-70 percent of grain used, 40-50 percent of meat consumption, similar high

shares of other animal products, potatoes, and virtually all sugar. Increased food self-sufficiency in Central Asia will entail further cotton area declines.

Of 1991's 7 percent decline in lint production, 1 percent was due to lower seed cotton yield. Another 1.5 percent of the decline resulted from reduced ginning rate. Despite the 1991 decline, yield remains 5 percent above the 1981-85 average. In Uzbekistan, the 1991 yield was 17 percent above 1987 and 9 percent above the 1981-85 average.

Recent yields are noteworthy because availability of manufactured inputs has declined since 1987 as prices escalated. The deliveries of 5,300 cotton pickers in 1990 was 31 percent below 1987. The cotton picker inventory was 53,000 machines in 1990, down 7 percent from 1987. Scientists continue to complain that low quality defoliants cause losses of up to half a million tons of cotton in the cotton-growing republics.<sup>122</sup> The poor quality of inputs has often meant little yield response. An analysis of fertilizer application rates available for cotton from 1974-88 showed no aggregate yield response.

Yields have been improved by abandoning marginal areas and increasing producer incentives. From 1987 to 1990, average producer prices increased 43 percent in Uzbekistan, 33 percent in Turkmenistan, and 24 percent in Tajikistan. Partial information indicates that these prices may have more than doubled from 1990 to 1991. Uzbekistan's Cabinet of Ministers issued a 1991 decree raising procurement and wholesale prices for seed and lint cotton from the 1991 harvest by an average of 50 percent.<sup>123</sup> Another citation states that Kyrgyzstan increased the producer price of cotton 30 percent in 1991 to exceed 3,000 rubles per ton.<sup>124</sup> Uzbekistan reportedly is increasing farm prices again in 1992. Yet increased input prices may be absorbing much of the gross increase in cotton earnings. Uzbekistan anticipates producing about 5 percent less lint in 1992.<sup>125</sup>

According to official decrees, farms are being allowed to retain some cotton for their disposition. For example, all cotton producers in Uzbekistan, provided they fulfill the plan, are free to dispose of all of the surplus cotton in addition to 5 percent of the state order. Tajikistan's will allow collective and state farms to retain 30 percent of their planned output of agricultural products. They will be able to sell them at contractual prices, use them as payment in kind, or exchange them in barter deals.<sup>126</sup> Although, these incentives may exist more on paper than in reality, the decline potential from lower input use is apparently affecting cotton yields less than many other crops.



## Russian Primary Export Destination

The need to understand the dynamics of republic production, consumption, and trade has increased with the breakup of the USSR. The most serious analytical limitation is the lack of interrepublic trade data. In 1990, the USSR published interrepublic cotton lint trade data for one year, 1988. That information is contrasted with information on production and consumption in table 55. The comparison shows that the data have serious inconsistencies or deficiencies regarding interrepublic trade and consumption. The deficiencies may concern cotton use in blended fabrics for which no data are available. The unreasonable stock buildups implied for republics such as the Ukraine, Uzbekistan, and Georgia cannot be explained by year-to-year variations in lint or fabric production. Times series data are available for these. For instance, Ukraine's annual variation in fabric production is only about 1 percent a year. Developing good commodity balances for the republic will be possible only as interrepublic trade data become available to extend the analysis. With these caveats, the following information is presented.

The primary market for the former USSR cotton producers has been to other Soviet republics. Little data

is available on interrepublic trade. However, estimates from the 1988 data indicate that cotton producers shipped over half of their production to other USSR republics in 1988, about a quarter was exported, and they retained about a fifth. Russia dominates the cotton textile industry far above its proportional share of population and overall economic activity. It was the destination of about three quarters of interrepublic lint cotton trade and accounted for over half of net cotton availabilities in 1988. Russia produced over 70 percent of cotton fabric. Russia accounted for 58 percent of total fabric exports (including interrepublic shipments) in 1988. The Ukraine accounted for 33 percent of fabric imports. Interrepublic cotton yarn trade (29,000 tons in 1988) is insignificant compared to 1.5 million tons of interrepublic lint trade. Disruptions in the supplies of raw materials, unreliable transportation, and shortages of spare parts and chemicals cut the textile industry's operating capacity in 1991.

Changes in price and income policies in the former USSR republics will continue to dampen consumer demand for apparel and fabrics. Retail prices for cloth and apparel have increased many fold as have prices for food and many other consumer goods. Compensation to offset the higher prices will be increasing difficult for the government to sustain without fueling inflation and

Table 55--Cotton balances, former USSR, 1987/88

Region	Lint output	Lint imports from republics	Lint foreign imports	Lint exports to republics	Lint foreign exports	Lint total net exports	Lint prod. minus net exp.	Lint available inc. yarn adj.	Lint implied stock change	Lint consump-estimate	Cotton fabric output	Stock/availability ratio
1,000 metric tons												
Russia	0	1,127.3	53	0	0	-1,180.3	1,180.3	1,163.9	-184.4	1,348.3	6,549.1	-14
Ukraine	0	178.6	0	0	0	-178.6	178.6	192.5	70.7	121.8	591.7	58
Byelarus	0	24.1	0	0	0	-24.1	24.1	28.6	3.2	25.4	123.4	12
Moldova	0	26.7	0	0	0	-26.7	26.7	30.3	1.2	29.0	141.1	4
Kazakhstan	96	22.7	0	28.0	41	46.3	49.7	46.6	17.1	29.5	143.1	58
Uzbekistan	1,505	2.9	0	886.3	460	1,343.4	161.6	154.7	51.4	103.3	501.7	50
Kyrgyzstan	20	18.6	0	11.2	0	-7.4	27.4	25.8	5.3	20.4	99.3	26
Tajikistan	276	0	0	178.4	57	235.4	40.6	40.3	12.9	27.4	133.1	47
Turkmenistan	380	0	0	312.6	63	375.6	4.4	8.1	1.9	6.2	30.2	31
Armenia	0	25.6	0	0	0	-25.6	25.6	26.5	4.5	21.9	106.6	21
Azerbaijan	225	1.9	0	68.7	110	176.8	48.2	46.7	15.7	31.0	150.8	50
Georgia	0	24.0	0	0	0	-24.0	24.0	25.3	10.7	14.6	70.9	74
Lithuania	0	9.8	11	0	0	-20.8	20.8	19.6	-3.5	23.1	112.0	-15
Latvia	0	6.0	0	0	0	-6.0	6.0	11.7	-1.1	12.7	61.9	-8
Estonia	0	17.0	25	0	0	-42.0	42.0	39.5	-5.8	45.2	219.7	-13
Total	2,502	1,485.2	89	1,485.2	731	642.0	1,860.0	1,860.0	0.0	1,860.0	9,034.6	0

Notes: Lint production is from 1987 crop; trade and fabric data are for 1988. The lint and fabric production and the interrepublic lint and yarn trade data are directly from Soviet published data. The yarn trade data (29,000 tons) were converted to lint equivalent using 0.67, the average that held in the USSR during the 1980's. For this table, total lint consumption in the USSR is assumed to equal production. Therefore, the fabric production to lint production ratio is calculated to be 4.857. This ratio is used to apportion total lint consumption among republics. Total foreign imports and exports are from Soviet published data. The total trade data were allocated to minimize the difference between lint consumption and availability. Still, the balances indicate large stock building in some republics, that in part likely reflect the problems in assuming a constant fabric to lint ratio across republics.

undermining reform. Sales of cotton fabrics to final consumers in 1991 decreased by one-half compared to 1990. Cotton consumption in the former USSR has been about 2 million tons per year. The International Cotton Advisory Council (ICAC) forecasts that domestic consumption will fall to 1.7 million tons by 1992/93.

As the republics work out new terms of trade, cotton could become relatively cheaper for mills. The Central Asia republics relied primarily on cotton to pay for cheap energy imports, primarily from Russia. The cotton producers will need to export relatively higher amounts of cotton to pay for the same level of higher priced energy. The need for higher exports exists whether the energy is purchased from Russia or foreign suppliers in the region.

The need for higher export earnings is greater than that caused by the higher energy prices alone. Estimates in both world and Soviet prices show that most cotton producing republics received large subsidies from the former USSR. For instance, even using distorted Soviet prices, Uzbekistan's trade deficit in 1989 equaled 39 percent of its total exports. Almost 90 percent of this was due to interregional trade. When the trade data are adjusted to world prices, the trade deficit increased to 58 percent of total exports. The increase reflects the terms of trade adjustment discussed in the trade section.

#### *Traditional Export Markets Shrink*

In the past, the majority of foreign exports were to socialist countries. In 1989, 50 percent of cotton exports were to Eastern Europe CMEA members. At least another 13 percent went to other CMEA countries (primarily Cuba). Another 10 percent went to Yugoslavia and North Korea. In late 1990, as republics sought control of hard currency earnings, they refused to honor traditional sales agreements, especially with soft-currency countries. Cotton exports plunged from 300,000 tons in the last quarter of 1989 to 65,000 tons in that same quarter of 1990.

The decline continued into 1991 as the USSR sought to cut subsidies to former allies by moving trade to world market prices using hard currency. According to one report, export licenses for cotton in 1991 were to be limited to 300,000 tons.<sup>127</sup> In the first half of 1991, cotton exports were 209,000 tons, 39 percent below the same period in 1990. The percent of decline was larger for those East European countries identified. Exports to Bulgaria were down 82 percent and those to Czechoslovakia, Hungary, and Poland were down about 50 percent. These four countries alone accounted for 54 percent of the decline in the first half of 1991 compared with 1990.

The declines in cotton exports to CMEA countries primarily reflect changing external trade and political considerations. As alternative trading arrangements are instituted, cotton exports to CMEA countries may recover somewhat. Exports to former CMEA countries likely picked up even by the second half of 1991. Final 1991 lint exports were down only 20 percent to 395,000 tons. Still, large stocks have been built as a result of the export declines. Uzbekistan has accumulated 400,000 tons (53 percent of total stocks) according to ICAC estimates.<sup>128</sup>

Another aspect of the search for new terms of trade may limit recovery of cotton exports to former socialist countries. Paying for energy resources from Russia may crowd out East European funds for other imports. This could include even cotton imports that the former allies may have been receiving at preferential prices.<sup>129</sup> Eastern Europe depended primarily on relatively cheap energy imports from the former USSR. As these subsidies are being cut, Eastern Europe is finding it increasingly hard to finance imports of higher priced energy from the USSR or other sources and still pay for other imports such as cotton lint.

The ability of the cotton exporting republics to increase exports from recent lows will largely depend on their ability to displace other exporters. The exporting republics will be faced with the need to raise external exports above historical levels as demand in the former USSR republics declines. Determining the current underlying competitiveness of cotton production in the former USSR republics is complicated. One analyst reviewed the problems in comparing Soviet technical efficiency to that of other countries.<sup>130</sup> A more difficult issue to tackle is the economic efficiency of production, especially considering the large degree of government interference in domestic and export prices.

A further complication for cross country comparisons is the inconvertibility of the ruble. At the current market ruble-exchange rates, Central Asian cotton production should be highly competitive. According to an ICAC analyst, it prices its cotton about 15 percent below the world level.<sup>131</sup> However, poor on-time delivery together with inadequate quality control that results in mixed cotton grades often make Central Asian cotton commercially unattractive. Turkmenistan reportedly offered to cut cotton export prices 30 percent on April 2, 1992, to stimulate sales.

The top four cotton producing republics have joined an Economic Cooperation Organization with Turkey, Iran, and Pakistan. To reinforce a political coalition in the region, the latter countries can be expected to help the former USSR Central Asian republics market lint in



international markets and develop textile industries. These new ties will be important to the Central Asian republics for several reasons. The contraction in the economy and higher real prices for clothing and linens as well as most other goods will dampen demand significantly. Furthermore, these largely landlocked republics have run

into problems in shipping through other former USSR republics. For example, a February 1992 report said that Turkmenistan was considering economic sanctions on the Ukraine because a port was refusing to ship 500 tons of Turkmenistan cotton to Turkey. (Yuri Markish and Kathryn Zeimetz)

## Endnotes

<sup>1</sup>*Narodnoe khozyaistvo SSSR v 1990 g.* (1991), p. 36, and *Ekonomika i zhizn'*, No. 6 (1992), p. 13. The latter source contains the 1991 plan fulfillment report for the CIS republics, cited often in this report, and translated in FBIS-USR-92-023, 3/5/92.

<sup>2</sup>During the year the total stock of credit to enterprises increased by more than 110 percent. *Ekonomika i zhizn'*, No. 6 (1991), p. 14.

<sup>3</sup>Not all of this amount was involuntary saving, since even at market-clearing prices consumers would wish to save some percentage of their income. *Ekonomika i zhizn'*, No. 6 (1992), p. 14.

<sup>4</sup>For further discussion of the causes and consequences of the repressed inflation, see *USSR Agriculture and Trade Report*, RS-91-1, ERS, USDA, May 1991, pp. 51-53; and William M. Liefert, "Growing Soviet Food Shortages: A Result of Economy-Wide Monetary Imbalance," Geonomics Institute, Occasional Paper No. 2, Oct. 1991.

<sup>5</sup>*Rossiyskaia gazeta*, 3/18/92, p. 3.

<sup>6</sup>*Narodnoe khozyaistvo SSSR* (1990), p. 545; and *Ekonomika i zhizn'*, No. 6 (1992), p. 16. The exclusion of the Baltic republics and Georgia from the 1991 CIS figure accounts for only about a fifth of the difference between the two values.

<sup>7</sup>President Yeltsin outlined the program in a speech to the Russian Supreme Soviet in late October 1991. See Moscow Russian Television Network, 0800 GMT, 10/28/91, translated in FBIS-SOV-91-209, pp. 46-55.

<sup>8</sup>*Rossiyskaia gazeta*, 12/26/91, p. 3.

<sup>9</sup>*Financial Times*, 4/22/92, p. 16.

<sup>10</sup>TASS International Service, 1714 GMT, 12/30/91.

<sup>11</sup>TASS International Service, 1440 GMT, 3/4/92, translated in FBIS-SOV-92-044, pp. 31-39.

<sup>12</sup>For example, see Petrakov's views as expressed in *Rabochaya tribuna*, 1/25/92, pp. 1-2. Andrey Nechaev, the Russian deputy minister of economics, counters this criticism in part by arguing that by the end of 1991 controls on wholesale prices had already been seriously weakened, while controls on retail prices remained in force. Liberalization of both types of prices was necessary to correct the imbalance (*Liberation*, 1/3/92, pp. 8-9). As mentioned earlier, rapid integration into the world economy would also reduce the harmful market power of large domestic producers.

<sup>13</sup>*Financial Times*, 4/22/92, p. 16.

<sup>14</sup>*Financial Times*, 5/1/92, p. 3.

<sup>15</sup>*Struktura roznychnykh tsen na tovary narodnogo potrebleniya za 1989 g.*, State Statistical Committee of the USSR, Moscow. Kenneth Gray, "The Soviet Food Complex in a Time of Change," *National Food Review*, Oct.-Dec. 1989, pp. 22-23.

<sup>16</sup>*Narodnoe khozyaistvo SSSR v 1990 g.* (1991), p. 113.

<sup>17</sup>From interviews with specialists at the Institute of World Economy and International Relations (IMEMO), September 1990.

<sup>18</sup>*Narodnoe khozyaistvo SSSR v 1990 g.* (1991), pp. 334-345.

<sup>19</sup>*Krest'yanskii (fermerskii) khozyaistvo rossiiskoi federatsii na 1 aprelya 1992 g.*, Goskomstat rossiiskoi federatsii, Moscow.

<sup>20</sup>K. Gray, "Individual Farms and Emerging Land Legislation in the Russian Federation," *CPE Agriculture Report*, III, 6 (Nov./Dec. 1990)

<sup>21</sup>*Krest'yanskii (fermerskii) khozyaistvo rossiiskoi federatsii na 1 fevralya 1992 g.*, Goskomstat rossiiskoi federatsii, Moscow, 1992. Not counted in the above numbers are private "reindeer hunting" enterprises in the far northern regions of Russia which run up to several hundred thousand hectares.

<sup>22</sup>See Kenneth Gray, "On the USSR Law on the Cooperative System: Free at Last?" and Edward C. Cook, "Cooperative Law Passed in the USSR," both in *CPE Agriculture Report*, Vol. I, No. 4 (July/Aug. 1988). Apparently some of the newly registered individual farms came out of farming cooperatives, which from 1988 had been legal guise for essentially family-managed enterprises. Indicative of the lingering control of the former Soviet state is the fact that the registered peasant farm has a "right" to its own ruble (and hard currency) bank account, whereas a family belonging to a cooperative or collective has only an account internal to that entity.

<sup>23</sup>These points reflect interviews conducted with prospective and actual peasant farmers as well as political figures, scholars, and government officials, in Russia and the Baltics in fall 1990 and fall 1991 by this author, political scientist Don Van Atta, and Roy Prosterman and Tim Hanstad of the University of Washington Law School. Those interested in the particularly legal point of view may wish to see the monograph by the latter two, "An update on individual peasant farming in the USSR." Rural Development Institute, Seattle WA, October 1991.

<sup>24</sup>*Moskovskiy komsomolets*, 12/27/91.

- <sup>25</sup>K. R. Gray, "Russian Land Privatization: Two Decrees Forward, One Decree Backward?" *Economies in Transition Agriculture Report*, Vol. 1, No. 1, January/February 1992.
- <sup>26</sup>*Informatsiia o khode zemel'noi reformy na 01.04.92*, Komitet po zemel'noi reforme i zemel'nym resursam pri pravitel'stve rossiiskoi federatsii, Moscow, 1992, p. 6.
- <sup>27</sup>Observed by the author in Volgograd and Sverdlovsk (now Ekaterinburg) oblasts. A detailed naming of names of the *nomenklatura* actively accumulating land and other farm assets in Rostov and Chelyabinsk oblasts is contained in, Vladimir Zubkov, *Rossiiskaya gazeta*, 3/19/92, p. 2 and Ye. Tokareva, *Rossiiskaya gazeta*, 4/1/92, p. 1, both translated in FBIS-USR-92-039 and 043.
- <sup>28</sup>*Informatsiia o khode zemel'noi reformy na 01.04.92 g.*, op. cit.
- <sup>29</sup>Six to seven times more people in Moscow and St. Petersburg agreed with a cardinal land reform than disagreed. *Nezavisimaya gazeta*, 2/26/92, p. 2.
- <sup>30</sup>*Moskovskie novosti*, 3/8/92, p. 4.
- <sup>31</sup>AKKOR's chairman, Vladimir Bashmachnikov was a deputy chairman of the land reform committee until late 1991. The committee is now a part of the Russian Ministry of Agriculture and the committee's former chairman, Dr. Viktor Khlystun, a former university prorector, is now the ministry's head.
- <sup>32</sup>*Interfax*, 2/13/92.
- <sup>33</sup>*Sel'skaya zhizn'*, 2/26/92, p. 2.
- <sup>34</sup>There are several explanations for the fact that different and changing numbers are reported for collective and state farms. (1) Approximately 300 fishing cooperatives may or may not be included. (2) Beginning in 1988, agricultural cooperatives started to be included in the statistics for collective farms. (3) A certain number of large collective and state farms have split into two separate farms. (4) Various state agricultural enterprises other than state farms, or state farms that belong to other ministries may or may not be counted.
- <sup>35</sup>Defenders of the status quo likened the decree to the famous "Dizzy with Success" pronouncement in which Stalin called for a (temporary) slowing of the pace of forced collectivization.
- <sup>36</sup>Moscow RIA in English 1525 GMT, 2/3/92 [FBIS-SOV-92-028-A, 2/11/92].
- <sup>37</sup>Kenneth Gray and Yuri Markish, "Recent Restrictions on Soviet Cooperatives to Halt 'Speculation.'" *CPE Agriculture Report*, Vol. II, No. 6, November/December 1989.
- <sup>38</sup>*Sel'skaya zhizn'*, 1/15/92; *Rossiiskaya gazeta*, 2/4/92.
- <sup>39</sup>APK: *Ekonomika, upravlenie*, No. 2, (1991), p. 5.
- <sup>40</sup>APK: *Ekonomika, upravlenie*, No. 8 (1991), p. 5.
- <sup>41</sup>Reported to a Curry Foundation delegation visiting Pskov oblast' in fall 1990. *CPE Agriculture Report*, Vol. III, No. 6 (1990).
- <sup>42</sup>*Vestnik sel'skokhozyaistvennoi nauki*, No. 6 (1991), p. 24.
- <sup>43</sup>*Khimizatsiya sel'skogo khozyaistva*, No. 12 (1991), p. 17.
- <sup>44</sup>*Vestnik sel'skokhozyaistvennoi nauki*, No. 6 (1991), p. 26.
- <sup>45</sup>N. N. Lipatov, "Ekologiya pishchevykh produktov, *Vestnik sel'skokhozyaistvennoi nauki*, No. 6 (1991), p. 25.
- <sup>46</sup>*Vestnik sel'skokhozyaistvennoi nauki*, No. 6 (1991), p. 28.
- <sup>47</sup>Deliveries do not necessarily equal field application since there are storage and transportation losses in delivery and on the farm.
- <sup>48</sup>The level in Czechoslovakia is 336 kilos per hectare, in the Netherlands, 805, in Japan, 393. *Sel'skaya zhizn'*, 10/10/91.
- <sup>49</sup>*USSR Situation and Outlook Report*, RS-87-4 (1987), p. 9.
- <sup>50</sup>*Zemlya i lyudi*, No. 10, (1990); *Goskomstat Press Release*, No. 288, 9/26/91.
- <sup>51</sup>*Zaschita rastenii*, No. 7, (1991), p. 24.
- <sup>52</sup>*INTERFAX*, 1930 GMT, 12/2/91, FBIS-SOV-91-235, 12/6/91. In dollar value, imports of pesticides from non-CMEA countries declined from \$510 million in 1987, to \$395 in 1988, to \$190 in 1989, and then increased to \$250 million in 1990 and \$340 million in 1991.
- <sup>53</sup>*Moskovskie novosti*, 12/29/01.
- <sup>54</sup>*Interfax Agriculture Report*, March 2-9, 1992, Vol. 1, No. 22, p. 2.
- <sup>55</sup>*Interfax Agriculture Report*, March 16-23, 1992, Vol. 1, No. 24, p. 8.
- <sup>56</sup>*Ekonomist*, 4 (1991), p. 7.; *Sel'skaya zhizn'*, 8/7/91.
- <sup>57</sup>*Interfax Agriculture Report*, March 16-23, 1992, Vol. I, No. 24, p. 8; APK: *Ekonomika, upravlenie*, No. 3 (1991), p. 3.
- <sup>58</sup>APK: *Ekonomika, upravlenie*, No. 8 (1991), p.3.
- <sup>59</sup>*Torgovaya gazeta*, 9/14/91; *Vestnik sel'skokhozyaistvennoi nauki*, No. 12 (1991), p. 24.
- <sup>60</sup>*Sel'skaya zhizn'*, 8/10/91.
- <sup>61</sup>Interview with Yuri Peskov, *Pravda*, 2/14/92, translated in FBIS-URS-92-035, 3/27/92, p. 60.
- <sup>62</sup>*Sel'skaya zhizn'*, 11/1/91.
- <sup>63</sup>*Sel'skaya zhizn'*, 3/13/92.
- <sup>64</sup>*Sovetskaya Rossiya*, 10/2/91.
- <sup>65</sup>TASS World Service in Russian, 7/12/91.
- <sup>66</sup>*Sel'skaya zhizn'*, 3/13/92.
- <sup>67</sup>*East Europe and USSR Agriculture and Food Monthly*, No. 115 (1992), Agra Europe Inc., pp 11-12.
- <sup>68</sup>Donald W. Green, *Toward the Resolution of the External Debt of the Former USSR*, PlanEcon Report No. 1, January 17, 1992, Washington, DC, 14 pp. and Donald W. Green, *The Soviet Economy through Nine Months of 1991*, PlanEcon Report No. 43-44, December 9, 1991, Washington, DC, 29 pp.
- <sup>69</sup>*PlanEcon Trade and Finance Review*, No. 3, December 1991.



<sup>70</sup>World Bank, "The External Convertible Currency Debt of the Soviet Union," *World Debt Tables 1991-92: External Debt of Developing Countries. Volume 1. Analysis and Summary Tables. Appendix III*, Dec. 1991, Washington, DC., pp. 91-96.

<sup>71</sup>*Ekonomika i zhizn'*, No. 4 (1992), translated in FBIS-URS-92-012, 2/6/92, p. 35.

<sup>72</sup>Yegor Gaydar on Russian Television Network, 1730 GMT, 3/27/92, translated in FBIS-SOV-92-062, 3/31/92, p. 35.

<sup>73</sup>A *Commerzant* article (1/28/91, p. 11) highlighted new import tariffs. Dry milk was listed under the 20-50 percent tariff group. Ground coffee, animal fat, oranges, meat and meat products, and non-American cigarettes are in the 51-100 percent category. Cocoa beans and bananas were in the 101-250 percent group, and lemons, grapefruit, tangerines, and packed tea the 251-500 percent class. American cigarettes were in the 800-1,000 percent category.

<sup>74</sup>*Commerzant*, 12/24/90, p. 9.

<sup>75</sup>*Pravda*, 11/3/90, p. 1, translated in FBIS-SOV-90-216, 11/7/90, p. 54.

<sup>76</sup>"Decree by the Russian President on Creating Republican Hard Currency Reserves in 1992," *Commerzant*, 1/6/92, pp. 13-14.

<sup>77</sup>For example, local governments in Kemerovo Oblast and Bashkortostan in Russia can keep 75 percent of their foreign exchange earnings (*INTERFAX*, 2/29/92, reported in FBIS-SOV-92-042, 3/3/92, p. 55 and 3/10/92, reported in FBIS-SOV-92-048, 3/11/92, p. 27).

<sup>78</sup>*Izvestiya*, 10/26/90, p. 1.

<sup>79</sup>The government devalued the tourist exchange rate from 0.6 rubles per dollar to nearly 6 rubles per dollar in November 1989, in an effort to compete with the black market. The government devalued the tourist exchange rate further in April 1991 to 27.6 rubles per dollar and in September 1991 to 32 rubles per dollar. The tourist rate was ended in December 1991.

<sup>80</sup>*Izvestiya*, 2/12/92, morning edition, p. 2, translated in FBIS-SOV-92-030, 2/13/92, p. 60.

<sup>81</sup>Ben Slay, "On the Economics of Interrepublican Trade," *RFE/RL Research Institute Report on the USSR*, Vol. 3, No. 48, 1991, pp. 1-8.

<sup>82</sup>TASS International Service, 2/15/92, translated in FBIS-SOV-92-032, 2/18/92, p. 24.

<sup>83</sup>Keith Crane and Matthew J. Sagers, *Estonia, Latvia, and Lithuania: Baltic States Political Profile Overshadows Economic Clout*, PlanEcon Report No. 47-48, Washington, DC. December 23, 1991, 30 pp.

<sup>84</sup>Robert B. Koopman, "The Soviet Food Problem: A Different Perspective, The Role of Relative Prices," *CPE Agriculture Report*, Vol. 3, No. 5 (1990).

<sup>85</sup>TASS International Service in Russian, 3/14/92, translated in FBIS-SOV-92-051, 3/16/92, p. 34.

<sup>86</sup>Donald W. Green, *The Soviet Economy through Nine Months of 1991*, PlanEcon Report No. 43-44, December 9, 1991, Washington, DC, 29 pp.

<sup>87</sup>The values will show a slower recovery, because the CMEA prices were distorted. Historical trade reporting had used these distorted prices. Thus, the volume of overall CMEA trade was overstated compared to the volume of trade with the West.

<sup>88</sup>The almost \$5 billion includes the \$1.1 billion announced on April 1, 1992, which had not been fully allocated as of May 1, 1992.

<sup>89</sup>With thorough reform that would cut waste and improve productivity, the former USSR could increase its agricultural exports. One commodity to watch is wheat, where it might compete with U.S. wheat in third country markets.

<sup>90</sup>Throughout this article "FCC" is used to include the former Central European members of CMEA (excluding East Germany) and the republics of the former USSR.

<sup>91</sup>The exceptions are Poland, Czechoslovakia, and Hungary, which have established de facto convertibility for trade, though not for capital movements.

<sup>92</sup>IMF, World Bank, OECD, EBRD, *A Study of the Soviet Economy*, Vol. 2, 1991, p. 39.

<sup>93</sup>A country trades according to CA by exporting goods it produces at relatively low cost, and importing those goods it produces at relatively high cost. One reason CA as applied to trade is a powerful idea is it maintains that a country can beneficially trade even if it does not have an absolute efficiency or cost advantage in the production of anything. Relative productivity, and thus relative costs, inevitably differ between countries. Economists therefore argue that virtually every country can find a fairly substantial pattern of profitable trade based on CA.

<sup>94</sup>Kenneth R. Gray, "Soviet Agricultural Specialization and Efficiency," *Soviet Studies*, Vol. 31, No. 4 (October 1979), pp. 542-558; Kenneth R. Gray, "Soviet Agricultural Prices, Rent and Land Cadastres," *Journal of Comparative Economics*, Vol. 5, No. 1 (March 1981), pp. 43-59.

<sup>95</sup>The respected Russian economist Nikolai Petrakov, Gorbachev's top economic advisor in 1989-90, conceded in January that the political impetus for separate republic currencies made a single currency "ruble zone" no longer feasible. An advocate of strong economic cooperation among the republics, though, Petrakov argues and hopes for coordinated monetary policies by the republics. *Rabochaya tribuna*, 1/25/92, pp. 1-2.

<sup>96</sup>Jozef M. van Brabant, "Convertibility in Eastern Europe Through a Payments Union," in John Williamson, editor, *Currency Convertibility in Eastern Europe*, pp. 63-95, Washington, DC, Institute for International Economics, 1991; Oleh Havrylyshyn and John Williamson, *From Soviet disUnion to Eastern Economic Community? Policy Analyses in International Economics*, No. 35, Washington, DC, Institute for International Economics, 1991.



<sup>97</sup>Havrylyshyn and Williamson, *ibid.*, p. 57-60. Peter Kenen raises other concerns about a PU for the FCC. His main worry is that a PU will stimulate trade among members at the expense of their liberalizing trade with nonmembers. He also argues that by reestablishing central controls in its clearing mechanism, a PU would be a step back from liberalizing exchange controls. Peter B. Kenen, "Transitional Arrangements for Trade and Payments Among the CMEA Countries," *IMF Staff Papers*, Vol. 38, No. 2 (June 1991), pp. 235-267.

<sup>98</sup>Either a common market or customs union could be combined with a PU.

<sup>99</sup>A fundamental result of conventional (Heckscher-Ohlin) trade theory is that if countries allow complete freedom of movement of factor inputs between them, they would each achieve generally the same levels of domestic consumption, prices, and real incomes as they would if they traded freely among themselves. Rather than indirectly trading inputs embodied in goods, the countries would now directly "trade" labor and capital. This result supports the decision of the European Common Market to become a stronger common market in 1992 by allowing free labor movement. An even bigger motive behind EC 92, though, is the desire to standardize commercial and labor laws and regulations, a feature implicit in the definition of a common market.

Two other weaker forms of economic integration as recognized in the literature are a free trade area and a preferential trade area. In the former, member countries freely trade goods (though not inputs), but individually handle trade restrictions with nonmembers. The sole feature of the latter is that the barriers to trade (tariffs and quotas) among member countries are less than with nonmembers.

<sup>100</sup>Put another way, if a country allows a good to be exported at a government-capped domestic price below the market-clearing price, it has changed the terms of trade against itself. The country also moves the terms of trade against itself if it allows an imported good to be sold at a government-imposed price above the domestic market-clearing price.

<sup>101</sup>For further discussion of the relationship between price and trade policy, specifically for the former CMEA countries, see Franklyn D. Holzman, *The Economics of Soviet Bloc Trade and Finance*, Boulder, CO, Westview Press, 1987, ch. 4, pp. 91-112; reprinted from *Comparative Economic Systems: Models and Cases*, edited by Morris Bornstein, Homewood, IL, Richard D. Irwin, 1985, pp. 367-386.

<sup>102</sup>TASS, 1253 GMT, 1/10/92; INTERFAX in English, 1743 GMT, 1/10/92; *Rossiiskaya gazeta*, 1/10/92, p. 4.

<sup>103</sup>As discussed earlier in the report, in early January the Russian Republic liberalized many prices while raising others. Most of the other republics have also selectively freed prices or increased them substantially, though none has yet taken price liberalization as far as Russia.

<sup>104</sup>Restricting exports is the opposite of trade policy in most developed Western countries, their policy being to limit imports. Restricting exports subsidizes consumers, while constraining imports subsidizes producers. Protectionist import constraints in the West, which take the form mainly of tariffs and quotas, raise the price at which domestic producers sell to consumers. Thus, the latter subsidize the former.

<sup>105</sup>"Proгнозы i realnost'", *Sel'skaya zhizn'*, 2/6/92, p. 1.

<sup>106</sup>For an explanation of the methodology used see, Edward C. Cook, "Soviet Inter-Republic Grain Trade," *CPE Agriculture Report*, Vol. IV, No. 3 (1991).

<sup>107</sup>Gridasov, I.I., "Skol'ko zerna nuzhno Rossii", *Zernovye kul'tury*, No. 3, 1990, pp. 2-3.

<sup>108</sup>Kresnikova, N. and L. Nechaeva, "Analiz effektivnosti mezhrespublikanskikh svyazey po produktsii APK," *Ekonomist*, No. 6 (1991), p. 105.

<sup>109</sup>Liefert, William M., Robert Koopman, and Edward C. Cook, "The Effect of Soviet Agricultural Liberalization on the USSR," ERS/ATAD working paper (1991).

<sup>110</sup>*U.S. Export Sales*, USDA/FAS, April 16, 1992, p. 33.

<sup>111</sup>*Interfax Agricultural Report*, Vol. 1, Issue 21, Feb. 24-Mar. 1, 1992, p. 1.

<sup>112</sup>*East Europe and USSR Agriculture and Food Monthly*, no. 113, February 1992, Agra Europe Inc., p. 5.

<sup>113</sup>INTERFAX, 11/29/91. Translated in FBIS-SOV-91-232, December 3, 1991, pp. 43-44.

<sup>114</sup>Annual meat production divided by beginning year inventories.

<sup>115</sup>"O formirovani gosudarstvennykh prodovol'stvennykh fondov na 1992 god," *Ekonomika i zhizn'*, No. 5, 1992.

<sup>116</sup>Liefert, William M., Robert Koopman, and Edward C. Cook, "The Effect of Soviet Agricultural Liberalization on the USSR," ERS/ATAD working paper (1991).

<sup>117</sup>The interrepublic trade data indicate net imports of 54,000 tons for all republics combined, but the official USSR external trade data indicate net imports of over 900,000 tons. (The discrepancy is smaller for 1988). Cotton data from the same source clearly showed only interrepublic trade, not external trade. But for sugar and vegetables, a net import figure was shown. The Azerbaijan per capita consumption number is in line with that published in a number of sources for recent years.

<sup>118</sup>*Ekonomika i zhizn'*, No. 6, 1992, p. 13-16, translated in FBIS-URS-92-023, 3/5/92, p. 1-18.

<sup>119</sup>In early December 1991, *Kuranty* (12/6/91, p. 4, translated in FBIS-URS-91-060, p. 91-92) reported that Ukrainian stores were already honoring sugar coupons for sugar for the first quarter of 1992.

<sup>120</sup>APK: *Ekonomika, upravlenie*, No. 11 (1990), p. 5.

<sup>121</sup>Grain provides a telling example. Yields increased 26 percent from 1988 to 1990, while during the same period fertilizer deliveries to farms were down 21 percent.

<sup>122</sup>*Sel'skaya zhizn'*, 10/11/91.

<sup>123</sup>*Delovoy mir*, 10/16/91.

<sup>124</sup>Russia's radio, 0900 gmt, 9/18/91.



<sup>125</sup>INTERFAX, 1333 GMT, 3/29/92, reported in FBIS-SOV-92-062, 3/31/92, p. 60.

<sup>126</sup>Russia's radio 1000 gmt, 11/14/91, SWB SU/WO206.

<sup>127</sup>"System for Licensing Export and Import," *Ekonomika i zhizn'*, No. 35, 1991, p. 11, translated in JPRS-UIA-91-028, December 6, 1991, p. 11-14.

<sup>128</sup>ICAC, Nov.-Dec. 1991.

<sup>129</sup>The preliminary and partial January-June 1991 Soviet trade data indicate that the CMEA countries are paying less than Western countries for cotton from the former USSR. The pre-1990 reports showed CMEA countries paying higher prices.

However, these data were distorted because of the administrative prices used for intra-CMEA trade accounting. The prices of Soviet imports from the CMEA countries likely were exaggerated to an even greater extent.

<sup>130</sup>Robert Koopman, *Efficiency and Growth in Agriculture: A Comparative Study of the Soviet Union, United States, Canada, and Finland*. USDA, Economic Research Service, 1989, 41 pp.

<sup>131</sup>A. Guitchounts, ICAC.



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